ARE VOLUNTARY INTERNAL CONTROLS-RELATED AUDIT REPORT DISCLOSURES INFORMATIVE IN IPOS?

BY

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DISSERTATION

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ABSTRACT

Initial public offering (IPO) companies are exempt from Section 404 of the Sarbanes-Oxley Act of 2002, leaving investors to assess the quality of an IPO company's internal controls, which affect the quality of management-provided financial information, without an opinion on internal controls effectiveness from management or the external auditor. When not engaged to opine on the effectiveness of internal controls, auditing standards permit auditors to voluntarily state that their opinion does not extend to internal control effectiveness. Given auditors' limited ability to distinguish financial reporting quality in the unqualified audit report, the costly nature of audit report modifications, and auditors' litigation risk concerns, these voluntarily audit report disclosures are likely informative as to the quality of internal controls. Using a sample of IPOs completed on United States equity exchanges from 2005 through 2014, I predict and find that the above-mentioned voluntary internal controls-related audit report disclosure is associated with a higher likelihood of post-IPO auditor-reported internal control deficiencies, lower IPO offer prices, lower post-IPO earnings, and increased post-IPO returns-based risk. These associations are robust to addressing the endogenous nature of the auditor's disclosure decision. Overall, my results suggest that auditor voluntary disclosures are informative. This research should be of interest to investors, regulators tasked with reforming the audit reporting model, and legislators who recently passed Title I of the Jumpstart Our Business Startups Act that exempts qualifying IPO companies from Section 404(b) reporting requirements for up to five years.

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CHAPTER 1

INTRODUCTION

This study examines the information content of voluntary audit report disclosures pertaining to internal controls over financial reporting (ICOFR) among initial public offering (IPO) companies. While IPO companies are exempt from Section 404(b) of the Sarbanes-Oxley Act of 2002 (SOx), which requires auditors to opine on management's assessment of the effectiveness of ICOFR for many public companies, auditors are still required to consider internal controls in the conduct of their audit. When not engaged to opine on ICOFR, in addition to the omission of an opinion on ICOFR, auditors can voluntarily state in the audit report that their opinion on the financial statements does not include an opinion on the effectiveness of ICOFR (PCAOB 2001). Absent an explicit opinion on the effectiveness of ICOFR, non-standard audit report disclosure in accordance with AU Section 9550 (hereafter "AU 9550 disclosure") is not likely to convey new literal information. However, the current unqualified audit report does not provide an explicit outlet to publicly communicate internal control deficiencies when not engaged to opine on ICOFR.[1] Therefore, given its voluntary nature and limited alternatives for distinguishing financial reporting quality in the unqualified audit report, AU 9550 disclosure is likely informative.

Studying the informativeness of AU 9550 disclosure added to the audit report in the IPO registration statement is important for at least two reasons. One, neither management, nor the external auditor, is required to opine on a company's internal control effectiveness at the time of the IPO. Accelerated filers must opine on internal control effectiveness in accordance with SOx as of the second fiscal year end after the IPO. So, while the intent of Section 404 of SOx is to

[1] In a financial statement audit, the auditor can overcome internal control deficiencies through additional substantive testing in order to issue an unqualified opinion.

improve the reliability of information public companies provide to the financial markets (COSO 2006; PCAOB 2004), it does not apply to IPOs companies, whose investors may benefit most from the enhanced reporting requirements due to the lack of public financial reporting history.

The non-applicability of SOx to IPO companies is likely based on consideration of the legislation's significant compliance cost, especially for smaller companies. Despite delayed compliance, SOx's cost has been linked to the significant decline in IPOs since 2000 (Gao, Ritter, and Zhu 2013), prompting legislators to pass Title I of the Jumpstart Our Business Startups (JOBS) Act in 2012. Title I created a new class of registrant, called an emerging growth company, that completes a modified IPO process and is exempt from the requirements of Section 404(b) of SOx for up to five years (PCAOB 2013).[2] The Section 404(b) exemption is noteworthy because material weakness disclosures are more informative for companies that are smaller and likely have higher pre-disclosure information asymmetry (e.g., IPO companies) (Beneish, Billings, and Hodder 2008).[3] The JOBS Act makes it more imperative for investors to identify timely sources of information for insight into the current and future internal control effectiveness of an emerging growth company, knowing that an explicit opinion from the auditor may not be available for up to five years. Pre-IPO AU 9550 disclosure may serve as a potentially discerning source of information pertaining to the effectiveness of ICOFR, as revealed through its

[2] An emerging growth company had less than $1.0 billion in annual revenue during its most recently completed fiscal year and may take advantage of any one or more of the following accommodations: meet with certain institutional investors to gauge interest in a contemplated offering; receive an initial confidential review of the registration statement from the SEC; present only two (rather than three) years of audited financial statements in the registration statement and two (rather than five) years of selected financial data; exempt from the internal controls audit required by Section 404(b) of SOx; provide streamlined executive compensation disclosure and exempt from shareholder advisory votes on executive compensation; use private company phase-in periods for new accounting standards; and, exempt from PCAOB rules pertaining to auditor rotation and proposed auditor discussion and analysis. An emerging growth company maintains its status for up to five years after its IPO date.

[3] Barth, Landsman, and Taylor (2014) examine emerging growth company IPOs and do not find any of the 158 companies sampled to voluntarily comply with Section 404(b) of SOx.

associations with post-IPO auditor-reported internal control deficiencies, IPO offer pricing, and post-IPO earnings and risk.

Two, the informativeness of non-standard audit report content under current auditing standards is unclear. Financial statement users often state that the standard U.S. audit report is uninformative unless it contains a going concern uncertainty (e.g., Humphrey, Loft, and Woods 2009; Gray, Turner, Coram, and Mock 2011). Prior research provides mixed evidence on the informativeness of required or recommended audit report modifications (e.g., Czerney, Schmidt, and Thompson 2014a, b; Butler, Leone, and Willenborg 2004; Bradshaw, Richardson, and Sloan 2001; Francis and Krishnan 1999). Practitioner views and academic researchers' evidence have motivated the Public Company Accounting Oversight Board (PCAOB) to consider reforms to the audit reporting model in an effort to make it more informative (PCAOB 2013). One such proposed reform would require the auditor to discuss some of the risks and uncertainties encountered in the conduct of the audit. There has been limited research, however, on voluntary audit report modifications, which may be differentially informative in comparison to required modifications due to their non-requisite nature.[4] This is especially true in the IPO setting where the scarcity of publicly available information and abundance of informational asymmetries (Willenborg 1999) make the auditor a more significant information intermediary, relative to the high information and liquidity environments in which established U.S. public companies operate.[5]

[4] Concurrent work by Harris, Omer, and Tanyi (2014) examines disclosures on the role of a component audit firm in the audit. My research differs from theirs in that they focus on voluntary language in accordance with AU Section 543, as opposed to AU Section 9550, not strictly in the IPO setting, and are interested solely in the financial reporting quality implications.

[5] The IPO setting is also an advantageous one in which to study the information content of AU 9550 disclosure because, whereas investors in established public companies after the passage of SOx expect the auditors to opine on ICOFR, the expectation for IPO companies is that ICOFR was not audited. Therefore, AU 9550 disclosure is more likely to convey new information regarding the scope of the auditor's work for established companies than for IPO companies.

Audit report modifications are costly to auditors because they can strain the auditor-client relationship and increase the risk of losing the client as a revenue source. AU 9550 disclosure is a modification to the standard unqualified audit report and, due to its voluntary and costly nature, is likely added for consequential reasons, suggesting that it is informative. Specifically, AU 9550 disclosure may be provided when internal controls are poor, in an effort to disassociate the auditor from the underlying causes of a possible future financial reporting failure that could trigger a lawsuit in the already high litigation IPO environment.

Considering the costly nature of audit report modifications and auditor litigation risk concerns, I make four directional predictions pertaining to the effects of AU 9550 disclosure. One, AU 9550 disclosure is associated with an increased likelihood of post-IPO Section 404(b) material weaknesses. The premise for this expectation is that companies are less likely than auditors to detect internal control deficiencies (Bedard and Graham 2011). As well, resource constrained companies are less likely to remediate internal control deficiencies (Bedard, Hoitash, Hoitash, and Westermann 2012). Therefore, poor (or non-existent) pre-IPO internal controls that motivate AU 9550 disclosure will persist until the auditor's Section 404(b) audit, required in the second fiscal year after the IPO (at the earliest). Two, I predict that AU 9550 disclosure is negatively associated with IPO offer prices, as the perceived reliability of financial information is lower when internal controls are not audited. Three, I expect AU 9550 disclosure that reflects poor internal controls is associated with lower post-IPO earnings. Strong internal controls enhance the quality of information systems that generate the data management uses to make resource allocation decisions (Lambert, Leuz, and Verrecchia 2007). Poor internal controls, then, can contribute to the misallocation of resources and may require companies to divert resources to improve internal controls, leading to lower future financial performance. Four, AU 9550

disclosure, as a form of enhanced disclosure that suggests poor financial information quality, is associated with increased post-IPO risk. For this prediction, I draw on prior research that finds associations between internal control deficiencies and company risk (Ashbaugh-Skaife, Collins, Kinney, and Lafond 2009; Beneish, Billings, and Hodder 2008) and companies' disclosure practices and perceived riskiness (Lang and Lundholm 1993).

To test my hypotheses, I analyze the text of the audit report included in the S-1 or F-1 filing for a sample of IPOs completed on U.S. stock exchanges between 2005 and 2014 to identify reports that contain AU 9550 disclosure. I then test whether AU 9550 disclosure is informative as to future auditor-reported ICOFR deficiencies, IPO offer prices, future earnings, and post-IPO risk. I find that AU 9550 disclosure added to the audit report included in the registration statement is associated with an increased likelihood of post-IPO auditor-reported ICOFR deficiencies. I also find that AU 9550 disclosure is associated with lower IPO offer prices, using three complementary measures of the IPO offer price: the midpoint of the pre-IPO offer price range; the final IPO offer price; and, the price of the IPO company's stock at the close of the first day of trading. Finally, I find that AU 9550 disclosure is associated with lower future earnings and increased post-IPO risk. In an additional analysis, I confirm that my results with respect to AU 9550 disclosure are robust to addressing the endogenous nature of the auditor's decision to add such disclosure. Overall, I provide robust evidence that AU 9550 disclosure is informative as to internal controls quality, financial information quality, and IPO company performance and risk.[6]

My research makes three primary contributions to the accounting literature. One, I contribute to the literature on IPO disclosures. Prior research finds that management-provided voluntary disclosures are useful in the evaluation of IPO companies (e.g., Guo, Lev, and Zhou

[6] Ritter (1984, p. 221) argues that, in the IPO context, risk relates to informational differences.

2004; Leone, Rock, and Willenborg 2007; Schrand and Verrecchia 2002). Auditor-provided required disclosures are also informative to IPO investors (e.g. Willenborg and McKeown 2001; Ghicas, Papadaki, Siougle, and Sougiannis 2008). My research extends the disclosure literature by studying the information content of AU 9550 disclosure, as a unique type of non-management voluntary disclosure, for IPO companies. Studying non-management voluntary disclosure is important because limited involvement by third parties in pre-IPO companies makes it difficult for investors to assess the credibility of management voluntary disclosures.

Two, I contribute to the internal controls literature. Prior studies have analyzed the determinants (e.g., Ashbaugh-Skaife, Collins, and Kinney 2007; Doyle, Ge, and McVay 2007b) and consequences (e.g., Ashbaugh-Skaife, Collins, Kinney, and Lafond 2009; Doyle, Ge, and McVay 2007a) of material weaknesses in ICOFR. I extend this line of research by identifying the inclusion of AU 9550 disclosure in the pre-IPO audit report as a prospective factor that is incrementally informative of future financial reporting quality, earnings, and risk. This result is noteworthy because it suggests that more subtle auditor-provided information, as opposed to unambiguous significant deficiencies or material weaknesses, is relevant to the assessment of information quality and internal controls. My results should be of interest to legislators who passed Title I of the JOBS Act, which postpones the public communication of material weaknesses in ICOFR that may reasonably be known at the time of the IPO. My findings suggest that in passing Title I, legislators weighed public companies' compliance cost concerns more heavily than the potential cost of unaudited control systems to investors.

Three, I contribute to the literature on the information content of the audit report in two key ways. One, I study previously unexamined AU 9550 disclosure, which answers the call from Church, Davis, and McCracken (2008) for further research on the effect of different disclosures

in the audit report. My research can inform the ongoing discussion regarding requiring auditors or management to explicitly state whether or not the company has obtained an attestation on internal controls from the auditor, in an effort to increase transparency and investor protection (GAO 2013). Two, I am the first, to my knowledge, to study the information content of the audit report for IPO companies strictly in the post-SOx regulatory environment characterized by heightened skepticism of both new issuances and auditors. Studying this time period is important because auditors' communications may be differentially informative under PCAOB regulation versus self-regulated regimes.

The remainder of the paper is organized into four additional chapters. Chapter 2 provides background information and develops the hypotheses. Chapter 3 details the sample selection procedure and research design. I review my empirical results in Chapter 4 and, in Chapter 5, I discuss additional analyses performed and the results thereof. My conclusions are presented in Chapter 6.

CHAPTER 2

BACKGROUND INFORMATION AND HYPOTHESIS DEVELOPMENT

2.1 AU Section 9550

I utilize the non-standard audit report content provided in accordance with AU Section 9550 as a mechanism to study the information content of auditor voluntary disclosures. Although an IPO company's auditor is not required to opine on the effectiveness of ICOFR, professional standards require the auditor to obtain a detailed understanding of internal controls in order to assess control risk, which impacts the nature, timing, and extent of substantive audit procedures underlying the opinion on the fair presentation of the financial statements (Asare, Fitzgerald, Graham, Joe, Negangard, and Wolfe 2013). This detailed understanding of the internal control environment not only impacts the conduct of the financial statement audit, but may also influence the auditor's decision to provide voluntary disclosure in the audit report, following AU Section 9550. AU Section 9550 permits the addition of non-standard content to the audit report when the auditor does not opine on effectiveness of ICOFR. Specifically, AU Section 9550.10 states that the auditor may consider adding, but is not required to add, the following disclosure to the standard unqualified audit report:

> "We were not engaged to examine management's assertion about the effectiveness of [name of entity's] internal control over financial reporting as of [date] included in the accompanying [title of management's report] and, accordingly, we do not express an opinion thereon."

Refer to Appendix A for examples of AU 9550 disclosure from IPO companies in my sample.

2.2 Voluntary Disclosure in the IPO Setting

Enhanced disclosure is one way to reduce information asymmetry in IPOs. The extent of voluntary disclosures is associated with lower post-IPO information asymmetry (Guo, Lev, and Zhou 2004) and disclosure specificity in IPO registration statements reduces ex ante uncertainty

(Leone, Rock, and Willenborg 2007). Voluntary company-provided news disclosures outside regulatory filings are associated with less underpricing for companies with the highest first-day returns (Schrand and Verrecchia 2002). The limited information available from third party sources for IPO companies (Aharony, Lin, and Loeb 1993; Friedlan 1994), however, makes it difficult to judge the appropriateness of reported accounting numbers (Fan 1997). When other outlets do not provide credible information, the audit report becomes particularly useful (Church et al. 2008). Collectively, these results indicate that disclosure (particularly voluntary disclosure) is informative for IPO companies, but its impact on information asymmetry is limited when the disclosures are unverified.

Auditors, as third party information intermediaries, play a key role in shaping a company's information environment and enhance the credibility of disclosed information (Beyer, Cohen, Lys, and Walther 2010). They reduce information asymmetry in IPOs by opining on the financial statements included in the registration statement and ensuring that material facts in regulatory filings are properly disclosed (Willenborg 1999). Datar, Feltham, and Hughes (1991) analytically show that the content of the audit report is informative when higher audit quality is more costly. Subsequent empirical research supports this result, as going concern opinions (Willenborg and McKeown 2001) and "quantifiable qualifications" in international equity markets (Ghicas, Papadaki, Siougle, and Sougiannis 2008) are informative for IPO companies.[7] In sum, audit report content is informative for IPO companies, but empirical tests to date have been restricted to required auditor disclosures. My research adds to this literature by exploring the informativeness of auditor-provided AU 9550 disclosure – a form of voluntary, non-management-provided disclosure.

[7] Ghicas et al. (2008, p. 513) define "quantifiable qualifications" as "monetary amounts missing or misstated on the financial statements but disclosed in the auditor's report." A comparable qualification does not exist under U.S. auditing standards.

2.3 Audit Report Informativeness

The audit report is the outcome of a negotiation between management and the auditor (Antle and Nalebuff 1991; Gibbins, Salterio, and Webb 2001), during which auditors must balance client preferences against their fiduciary duty to act in the interest of financial market constituents. Companies are more likely to terminate their auditor after the auditor issues an audit report containing non-standard content (e.g. Chow and Rice 1982; Mutchler 1984; Geiger, Raghunandan, and Rama 1998), suggesting a company preference for a standard unqualified audit report and potential adverse consequences to the auditor for issuing a non-standard report. Financial statement users' tendencies to limit their review of the audit report to whether or not it is unqualified reinforce this client preference (Gray et al. 2011). The auditor's relationship with the company influences her likelihood of including not only adverse non-standard content in the audit report (Lennox 2005; Ye, Carson, and Simnett 2011), but also non-standard content that could be perceived unfavorably.[8] The payment of audit fees from the company to the auditor strengthens the company's potential influence on the auditor (DeFond and Francis 2005; Francis 2006). To the extent non-standard audit report disclosure influences companies' auditor retention decisions or audit fees, non-standard audit report disclosure is costly and as a result, when voluntary, is not likely added for trivial reasons.

Public companies' audit reports are generally "boilerplate" (Gray et al. 2011), conveying little of the auditor's vast private information, due to the Securities and Exchange Commission's (SEC) requirement for all audit reports to be unqualified. Auditors can leverage the voluntary

[8] Financial statement users do not fully understand auditors' responsibilities (Church et al. 2008), which could be due, in part, to their inability to process the content of the audit report. Investors generally find, "The [audit] report is useful if one can read between the lines … sometimes there are nuances, which can let the careful reader note the state of affairs is not as it should be" (CFA 2011, p. 9). Unsophisticated investors merely observe that a disclosure has been made without being able to infer the value of the disclosure (Fishman and Hagerty 2003) and may not recognize the nuanced nature of the audit report. A lack of understanding as to the auditor's responsibilities can lead financial statement users to perceive AU 9550 disclosure as conveying new information that a Section 404(b) audit was not conducted.

nature of AU Section 9550 to distinguish financial reporting and disclosure quality, the foundations of which are internal controls, in the unqualified audit report. I expect auditors to voluntarily include AU 9550 disclosure in the audit report when internal controls are poor, in response to auditors' heightened litigation risk exposure for IPOs relative to existing public companies (Venkataraman, Weber, and Willenborg 2008).[9] Auditor litigation risk stems from the higher likelihood of being sued as a result of a failure in financial reporting (Palmrose 1987, 1988; Stice 1991; Lys and Watts 1994). Enhanced disclosure is an effective hedge against all types of litigation (Hanley and Hoberg 2012), with AU 9550 disclosure being a form of enhanced auditor disclosure. As such, auditors' AU 9550 disclosure can reduce litigation risk by disassociating the auditor from the poor internal controls underlying financial reporting failures that trigger future lawsuits.

2.4 Hypothesis Development

2.4.1 Hypothesis 1

The first hypothesis predicts a positive association between AU 9550 disclosure and post-IPO auditor-reported material weaknesses. Private (pre-IPO) companies typically have weaker internal controls than public companies (Gray et al. 2011). Although private companies may have internal processes in place to evaluate internal controls, weaker controls persist because, relative to auditors, companies tend to neither detect (and correct) as many internal control deficiencies, nor detect deficiencies most-likely to affect financial reporting (Bedard and Graham 2011). As IPO companies transition from private to public companies, many must improve their control environments to meet the higher standard for public companies.

[9] Venkataraman et al. note that companies register their IPO under the Securities Act of 1933 but, after going public, file under the Securities Exchange Act of 1934. Litigation risk exposure is higher under the 1933 Act than under the 1934 Act because the 1933 Act, in effect, imposes strict liability on issuers for material misstatements or omissions in a registration statement. Comparatively, under the 1934 Act, a plaintiff must demonstrate that an issuer knowingly misled investors.

The auditor can informally communicate observations on the company's ICOFR from its pre-IPO financial statement audit to management or the audit committee, providing a starting point for improvement efforts. However, resource-constrained companies, such as IPO companies, are less likely to remediate control problems that involve significant resources, especially large capital investments (Bedard et al. 2012). Control deficiencies not remediated will become reportable conditions in the auditor's opinion on the effectiveness of ICOFR.

I expect AU 9550 disclosure that reflects the auditor's lack of comfort with the effectiveness of ICOFR to be associated with an increased likelihood of auditor-identified internal control deficiencies in the first year after the IPO in which the auditor renders a Section 404(b) opinion. I formally state H1, in the alternative form, as follows:

> **H1**: AU Section 9550 audit report disclosure is associated with an increased likelihood of post-IPO auditor-reported ICOFR deficiencies.

2.4.2 Hypothesis 2

The second hypothesis predicts a negative association between AU 9550 disclosure and IPO offer pricing. The company and its underwriters typically set the final offer price after market close on the day before the offering (Lowry and Schwert 2004), taking into consideration investors' perceptions of the issue gleaned from the road show (Benveniste and Spindt 1989). The offer price is set without the company or its underwriters knowing precisely what the market's valuation of the stock will be (Benveniste and Spindt 1989). IPO issuers' information advantage over investors (Ritter and Welch 2002; Demers and Joos 2007) and absence of a reference market price prior to the IPO (Friedlan 1994) make it difficult for investors to evaluate an IPO (Ritter and Welch 2002; Demers and Joos 2007). Information asymmetry between the company and investors can lead prospective investors to discount their valuation (Myers and Majluf 1984).

Accounting information is a key source of non-price information used to evaluate the IPO offer price (Friedlan 1994). Auditors reduce the information asymmetry between the company and prospective investors by certifying the financial information management provides. The auditor's influence on the reliability of the financial information may be limited, however, because she is not required to conduct an audit of internal controls in accordance with Section 404(b) of SOx, the intent of which is to improve the reliability of information public companies provide (COSO 2006; PCAOB 2004). AU 9550 disclosure stating that a SOx audit was not conducted suggests that the reliability of financial statement information provided is lower, and risk stemming from the likelihood that company-specific information is of poor quality is relevant for pricing decisions (Francis, LaFond, Olsson, and Schipper 2005).[10] Accordingly, I expect AU 9550 disclosure to be associated with lower IPO offer pricing and formally state my expectation as H2, in the alternative form, as follows:

H2: AU Section 9550 audit report disclosure is associated with lower IPO offer prices.

2.4.3 Hypothesis 3

AU 9550 disclosure may be associated with lower post-IPO earnings. The quality of information systems, of which the effectiveness of internal controls is a key component, directly affects the quality of the financial data available for informed decision-making (Lambert et al. 2007). Managers relying on incomplete or inaccurate information face more uncertainty. A good internal control system can improve the accuracy of disclosures and other decisions made using internal financial data (Feng, Li, and McVay 2009) by providing more timely, complete, and accurate financial information. ICOFR, therefore, can have an economically significant effect on company operations (Feng, Li, McVay, and Ashbaugh-Skaife 2014). Specifically, Cheng,

[10] Ecker (2014) finds evidence consistent with the hypothesis that information precision at the time of the IPO is unknown to investors and, therefore, must be estimated with considerable error due to the little or no public information history about a company's fundamentals.

Dhaliwal, and Zhang (2013) show that investment inefficiency is mitigated after the disclosure of ICOFR weaknesses. Ultimately, AU 9550 disclosure, as a proxy for poor internal controls, is likely associated with lower future earnings due to internal controls' adverse impact on earnings through poorer quality internal decision-making and through the diversion of financial resources to improve the internal control environment.

The effect of internal control quality can also influence future earnings through its impact on the quality of accruals. Internal control weaknesses are associated with poorly estimated accruals that are not subsequently realized as cash flows (Doyle et al. 2007a). As well, in the presence in of Section 404 internal control deficiencies, management tends to guide (Feng, Li, and McVay 2009), and analysts tend to forecast (Clinton, Pinello, and Skaife 2014), less accurately, suggesting that earnings are more difficult to forecast when internal controls are poor. In sum, I expect AU 9550 disclosure that reflects poor internal controls to be associated with lower future earnings. I formally state my prediction as follows:

> **H3**: AU Section 9550 audit report disclosure is associated with lower post-IPO earnings.

2.4.4 Hypothesis 4

AU 9550 disclosure may also be associated with increased post-IPO risk. Material weakness disclosures are associated with significantly negative stock returns (Beneish et al. 2008; Hammersley, Myers, and Shakespeare 2008), indicating that these disclosures are informative to equity investors. Companies with internal control deficiencies have significantly higher idiosyncratic risk, systematic risk, and cost of equity (Ashbaugh-Skaife et al. 2009; Beneish et al. 2008). Ashbaugh-Skaife et al. interpret this result as demonstrating the link between financial information quality and risk. Increases in the perceived riskiness of a company are important because they can raise the cost of capital (Froot, Perold, and Stein 1992). Lang and

Lundholm (1993) find that assessments of corporate disclosure practices are positively associated with companies' return volatility – a measure of perceived riskiness. It follows that voluntary AU 9550 disclosure, a form of enhanced auditor disclosure, may be associated with increased risk, especially to the extent that it suggests poor financial information quality.

I formally state my predictions for the associations between AU 9550 disclosure and post-IPO risk, in the alternative form, as follows:

H4: AU Section 9550 audit report disclosure is associated with higher post-IPO risk.

CHAPTER 3

RESEARCH DESIGN

3.1 Sample Selection

I analyze the content of the audit report included in the registration statement for a sample of 1,669 IPOs completed on U.S. public equity exchanges from January 1, 2005 through mid 2014 to identify the presence of AU Section 9550 disclosure. I use a Python script to download IPO data from www.nasdaq.com.[11] I restrict my analysis to companies that originally file their registration statement with the SEC on form S-1 or F-1. Consistent with prior IPO research and to limit the influence of economically small outliers on my results, I exclude 109 observations with missing IPO offer prices or prices less than $5 per share and 328 observations with pre-IPO total assets of less than $1,000,000 (inclusive) or missing. The audit report could not be extracted from the registration statement for 125 observations. I exclude 16 IPOs with pre-IPO Section 404(b) audit reports because I am interested in studying a setting where explicit auditor-provided information on the effectiveness of ICOFR is not available at the time of the IPO. Finally, I exclude 8 IPOs of non-operating companies (Standard Industrial Classification Code 9995). After these exclusions, the sample of IPOs eligible for my multivariate analyses is 1,083. The final sample size for my test of H1 is 549 because AuditAnalytics does not contain SOx Section 404(b) data for 339 observations, Section 404(b) data is not available within 27 months of the IPO date for 40 observations, and data necessary to compute control variables is missing for 155 observations.[12] The sample size for my test of H2 is 1,045 due to 38

[11] www.nasdaq.com includes data for IPOs completed on multiple U.S. equity exchanges, including the NASDAQ, New York, and American Stock Exchanges, as well as on the Over the Counter Bulletin Board.

[12] New registrants are not required to comply with Section 404(b) of SOx until their second annual report filed as a public company. I restrict my analysis to 27 months after the IPO to include two full years, plus three months that it typically takes to prepare annual financial statements. My results are unchanged when I include the 40 observations with delayed compliance.

observations lacking data necessary to compute control variables. The final sample for my test of H3 contains 866 observations because 58 observations have pre-IPO return on assets of less than -100 percent, Compustat data is not available for 26 observations for a fiscal year ending within a year after the IPO, and 133 observations are missing data for control variables. The final sample for my test of H4 includes 834 observations, as CRSP data was missing for 234 observations and data was not available for control variables for 15 observations.

3.2 Multivariate Analysis

3.2.1 Material Weakness Model

I test H1, which predicts an increased likelihood of auditor-reported material weaknesses in ICOFR when the audit report included in the IPO registration statement includes AU 9550 disclosure, using a logistic regression model where *ICDEF404_A* is the dependent variable and *AU9550* is the independent variable of interest, as follows:

$$ICDEF404\_A = \beta_0 + \beta_1 AU9550 + \beta_2 AU508OTHER + \beta_3 AU508GC + \beta_4 LOSS\_A + \beta_5 CRATIO\_A + \beta_6 INVENTORY\_A + \beta_7 ZSCORE\_A + \beta_8 Log(MKTVAL404\_A) + \beta_9 SQEMPLOYEES\_A + \beta_{10} Log(SEGMENTS_A) + \beta_{11} BIGN404 + \beta_{12} CHGAUDITOR\_A + \beta_{13} NAFRATIO\_A + \beta_{14} Log(AUDITFEES_A) + \beta_{15} LITRISK + \beta_{16} AS5\_404\_A + \varepsilon \quad (1)$$

ICDEF404_A is an indicator variable that equals one if the audit report identifies an ICOFR deficiency in the first fiscal year (after the IPO) the auditor opines on the effectiveness of ICOFR, and zero otherwise. The independent variable of interest, *AU9550*, is an indicator variable equal to one if the audit report included in the registration statement states that the auditor was not engaged to audit the effectiveness of ICOFR and, accordingly does not express an opinion thereon, and zero otherwise. I identify the presence of AU 9550 disclosure using text-parsing routines that search for keywords and phrases in the audit report that are indicative of

internal control-related scope limitations. I manually validate the accuracy of my analysis for a sample of audit reports.

AU508OTHER and *AU508GC* control for other non-standard content in the audit report. AU Section 508.11 identifies eight circumstances that require the auditor to add non-standard language to the audit report. One circumstance is when there exists substantial doubt about the company's ability to continue as a going concern. The other circumstances convey information relevant to non-viability risks that may also be important considerations in the IPO context. Accordingly, I control for these other types of non-standard audit report language. *AU508OTHER* is an indicator variable equal to one if the audit report contains non-standard content, other than a going concern uncertainty, in accordance with AU Section 508, and zero otherwise. *AU508GC* is an indicator variable equal to one if the audit report expresses substantial doubt about the company's ability to continue as a going concern, and zero otherwise. I identify the presence of AU Section 508 content using text-parsing procedures consistent with Czerney et al. (2014a, b). While *AU9550*, *AU508OTHER*, and *AU508GC* are measured using the content of the audit report in the IPO registration statement, all other regression variables are calculated as of (for) the fiscal year end(ed) in which the auditor opines on the effectiveness of ICOFR.

The control variables in this model follow Ashbaugh-Skaife et al. (2007) and Doyle et al. (2007b). I control for companies' financial soundness using an indicator variable that equals one if the company reports a loss, and zero otherwise (*LOSS*), the ratio of current assets to current liabilities (*CRATIO_A*), and the Zmijewski (1984) financial distress measure (*ZSCORE_A*). I control for company size with the market value of equity as of fiscal year end (*MKTVAL404_A*). I measure organizational complexity with the square root of the number of employees at the

company as of fiscal year end (*SQEMPLOYEES_A*) and the natural logarithm of the number of geographic segments (*Log(SEGMENTS_A)*).

I control for the auditor's ability to identify internal control deficiencies and incentives to disclose material weaknesses using four measures. *BIGN404* equals one if the company's auditor that issues the first opinion on ICOFR in accordance with Section 404(b) is Deloitte, Ernst & Young, KPMG, or PriceWaterhouseCoopers, and zero otherwise. *CHGAUDITOR_A* equals one if the auditor that opines on the effectiveness of ICOFR is different from the auditor that signs the audit report included in the IPO registration statement, and zero otherwise. I measure the economic bond between the company and auditor using the ratio of non-audit fees to total fees (*NAFRATIO_A*) and the natural logarithm of the total audit fees (*Log(AUDITFEES_A)*) to control for any potential economic bonding and auditor effort.

Consistent with Ashbaugh-Skaife et al. (2007), I control for heightened litigation risk using an indicator variable that equals one if the company is in a high litigation risk industry, and zero otherwise (*LITRISK*). I identify high litigation risk industries following Venkataraman et al. (2008). Finally, I include an indicator variable associated with the passage of Auditing Standard No. 5 (*AS5_404_A*) that equals one if the period end date of the first audit report that includes an opinion on ICOFR is on or after November 15, 2007, and zero otherwise. I winsorize all continuous variables at the 1 percent and 99 percent levels. Refer to Appendix B for further discussion of variable construction and data sources.

3.2.2 Offer Price Model

H2 predicts that the presence of AU 9550 disclosure in the audit report is negatively associated with the IPO offer price. To test H2, I use Ordinary Least Squares (OLS) to estimate

the following model expanded from the accounting-based IPO valuation model in Bartov, Mohanram, and Seethamraju (2002):

$$IPOPRICE = \beta_0 + \beta_1 AU9550 + \beta_2 AU508OTHER + \beta_3 AU508GC + \beta_4 BIGN + \beta_5 Log(UNDERWRITERS) + \beta_6 Log(IPO\_LENGTH) + \beta_7 Log(SHARES\_OFFER) + \beta_8 POSEPS + \beta_9 NEGEPS + \beta_{10} POSBV + \beta_{11} NEGBV + \beta_{12} FLOAT + \beta_{13} RDPS + \beta_{14} NASD\_ADJ + \beta_{15} LITRISK + \beta_{16} TECH + \beta_{17} AS5 + \beta_{18} DODDFRANK + \beta_{19} JOBS + \varepsilon \quad (2)$$

IPOPRICE is the final IPO offer price per share. *AU9550* is the independent variable of interest. In addition to controlling for the other non-standard content in the audit report using *AU508OTHER* and *AU508GC*, I control for the quality of the company's auditor using an indicator variable that equals one if the company's auditor is Deloitte, Ernst & Young, KPMG, or PriceWaterhouseCoopers, and zero otherwise (*BIGN*). I include a measure for the quality of the auditor because a company's independent auditor is a key member of its IPO expert advisor team. Underwriters encourage filing companies to engage a high-quality auditor to protect their reputations (Simunic and Stein 1987). IPO companies with prestigious underwriters are more likely to change to more credible auditors (Menon and Williams 1994), with the demand for high-quality auditors increasing with firm risk (Copley and Douthett, 2002). In the end, the quality of an IPO company's auditor can impact the IPO offer price.

The company's underwriters play a critical role in the IPO's pricing. IPO companies benefit from including more underwriters in the IPO syndicate (Corwin and Schultz 2005). I control for the size of the underwriting syndicate using the number of non-lead underwriters (*UNDERWRITERS*).

A company's preparedness to complete an IPO can impact the time it takes to complete its IPO. The SEC's Division of Corporation Finance reviews all IPO registration statements and communicates areas for improvement to the company in the form of a comment letter, to which

the company must respond with an amended registration statement. There can be several iterations of comments (Ertimur and Nondorf 2006) and comments have varying remediation costs depending on the accounting issue (Cassell, Dreher, and Myers 2013), suggesting that a longer IPO period has a negative impact on the offer price. Alternatively, a longer IPO period provides underwriters with more time for bookbuilding activities that can increase the demand, and ultimately offer price, for the IPO. Consistent with Loughran and McDonald (2013), I control for the length of the IPO period with *IPO_LENGTH*, which equals the number of days between the filing of the registration statement and IPO offer date.

Companies seeking to raise a predetermined amount of capital through the IPO can trade off the price at which they offer their shares with the number of shares offered. Consistent with Lowry, Officer, and Schwert (2010), I control for the number of shares issued in the IPO *(SHARES_OFFER*).

Next, I include several control variables following Bartov et al. (2002). *POSEPS* (*NEGEPS*) equals earnings per share for positive (non-positive) pre-IPO earnings, and zero otherwise. Earnings per share is calculated as earnings before extraordinary items for the last fiscal year ended prior to the IPO divided by total shares outstanding after the IPO. *POSBV* (*NEGBV*) equals book value of equity per share for positive (non-positive) pre-IPO book value of equity, and zero otherwise. Book value per share is calculated as common shareholders' equity as of the last fiscal year end prior to the IPO divided by total shares outstanding after the IPO. *FLOAT* equals the total number of shares offered in the IPO relative to total shares outstanding after the IPO. *RDPS* is research and development per share, calculated as research and development expenses for the last fiscal year ended prior to the IPO divided by total shares

outstanding after the IPO. Finally, *NASD_ADJ* is the level of the NASDAQ exchange on the IPO date, adjusted for inflation based on the Consumer Price Index.

I include two industry-based controls. One, litigation risk is a relevant consideration for IPO pricing (Tinic 1988; Hughes and Thakor 1992), so I include *LITRISK*. Two, significantly different IPO failure models apply to technology companies than to non-technology companies (Demers and Joos 2007) and there are noticeable differences between the valuation models for Internet and non-Internet companies (Bartov et al. 2002). Accordingly, *TECH* is an indicator variable equal to one if the company belongs to one of the technology industries Loughran and Ritter (2004) identify, and zero otherwise.

Finally, I control for time period effects associated with the implementation of Auditing Standard No. 5 and passing of the Dodd-Frank and JOBS Acts.[13] *AS5* equals one if the audit report included in the registration statement is for a period ended on or after November 15, 2007, and zero otherwise. *DODDFRANK* equals one if the company's IPO date is on or after the date the Dodd-Frank Act was passed (July 21, 2010), and zero otherwise. *JOBS* equals one if the company's IPO date is on or after the date the JOBS Act was passed (April 5, 2012), and zero otherwise. All other variables are as previously defined.

3.2.3 Earnings Forecast Model

H3 predicts a negative association between AU 9550 disclosure and post-IPO earnings. To test H3, I use OLS to estimate an accounting-based earnings prediction model modified from Harford, Mansi, and Maxwell (2008), in which return on assets (*ROA*) represents a scaled measure of earnings. My multivariate model is as follows:

[13] Beyond the pragmatic reasons for controlling for time period effects using indicators for these three events that greatly impacted internal controls evaluation and IPO activity, I use this approach because the inclusion of year indicators in this model and Model 4 raise severe multicollinearity concerns.

$$ROA_{post} = \beta_0 + \beta_1 AU9550 + \beta_2 AU508OTHER + \beta_3 AU508GC + \beta_4 ROA_{pre} + \beta_5 NWC_{pre} + \beta_5 LEVERAGE_{pre} + \beta_6 Log(AT_{pre}) + \beta_7 Log(OFFER\_AMT) + Year\ Indicators + \varepsilon \quad (3)$$

AU9550 is my independent variable of interest. My dependent variable (*ROA$_{post}$*) is return on assets for the first fiscal year ended after the IPO. I calculate return on assets using net income before extraordinary items divided by total assets. I control for the other non-standard content in the audit report included in the IPO registration statement using *AU508OTHER* and *AU508GC*, as previously defined. *ROA$_{pre}$* equals return on assets for the last fiscal year ended prior to the IPO. *NWC$_{pre}$* equals net working capital, calculated as total current assets (excluding cash and cash equivalents) less total current liabilities, scaled by total assets. *LEVERAGE$_{pre}$* equals total liabilities divided by total assets. *AT$_{pre}$* equals total assets for the last fiscal year ended prior to the IPO. Lastly, I control for the gross proceeds from the IPO, which may be reinvested in the business to increase future earnings. I calculate gross proceeds as the IPO offer price per share times the number of shares issued (*OFFER_AMT*).

3.2.4 Risk Model

H4 predicts that the presence of AU 9550 disclosure in the audit report is associated with increased post-IPO risk. To test H4, I use OLS to estimate the following model:

$$Risk = \beta_0 + \beta_1 AU9550 + \beta_2 AU508OTHER + \beta_3 AU508GC + \beta_4 BIGN + \beta_5 Log(UNDERWRITERS) + \beta_6 Log(IPO\_LENGTH) + \beta_7 FLOAT + \beta_8 TURNOVER + \beta_9 INITIALRET + \beta_{10} Log(MKTVAL) + \beta_{11} LITRISK + \beta_{12} TECH + \beta_{13} AS5 + \beta_{14} DODDFRANK + \beta_{15} JOBS + \varepsilon \quad (4)$$

I use two complementary measures for *Risk*, both calculated over [1, 60] and [1, 250] trading day intervals, where day 0 denotes the IPO date. One, I measure risk using the standard deviation of daily returns (e.g., Carter, Dark and Singh 1998). *SDRET60* (*SDRET250*) is the standard deviation of daily raw returns for the 60 (250) trading days after the IPO date. Two, *SDRESID60* (*SDRESID250*) is the standard deviation of the residuals from the market model (Sharpe 1963)

estimated using the 60 (250) trading days after the IPO.[14] I log-transform the standard deviations and estimate the market return using the daily return on the value-weighted CRSP.

AU9550 is my explanatory variable of interest. Because the audit opinions of larger auditors are more predictive of post-IPO outcomes and first-year returns (Weber and Willenborg 2003), I include *BIGN* to control for auditor size. I control for the number of underwriters in the IPO syndicate (*UNDERWRITERS*) because underwriters can influence post-IPO prices through direct participation in the aftermarket (Ritter and Welch 2002). *IPOLENGTH* is included in the model because IPOs that take longer to complete have more time to engage in bookbuilding and price discovery (e.g., Aggarwal and Conroy 2000), which can impact the post-IPO performance. I include *FLOAT* as a control because the percentage of ownership retained in the company by pre-IPO owners can signal the credibility of company-provided information (Leland and Pyle 1977). I control for the IPO date share turnover (*TURNOVER*), calculated as the number of shares traded relative to the total shares outstanding. *INITIALRET* equals the IPO date return, calculated as the difference between the price at the end of the IPO date and IPO offer price, scaled by the IPO offer price. Trading volume in the IPO aftermarket is higher when underpricing is greater (Krigman, Shaw, and Womack 1999; Ellis, Michaely, and O'Hara 2000), and enhanced trading volume can lead to increased volatility. *MKTVAL* equals the number of shares outstanding on the IPO date times the IPO offer price and controls for company size, as small and large companies have different risk profiles that are reflected in return-based measures of risk (e.g., Cheung and Ng 1992). *LITRISK* and *TECH* are included for reasons similar to those provided in Section 3.2.2. Definitions for previously defined variables are still applicable.

[14] Ashbaugh-Skaife et al. (2009) similarly use the standard deviation of the residuals to measure idiosyncratic risk.

CHAPTER 4

EMPIRICAL RESULTS

4.1 Descriptive Statistics

Table 2 presents descriptive statistics for AU 9550 disclosure by IPO year. Table 2, Panel A, displays the frequency of *AU9550*, the number of instances of *ICDEF404_A*, and mean *OFFER_AMT* by IPO year for the material weakness sample. Table 2, Panel B, displays the frequency of *AU9550* by IPO year and the mean *IPOPRICE* and *OFFER_AMT* for the IPO offer price sample. Table 2, Panel C, presents the frequency of *AU9550* and means for ROA_{post} and *OFFER_AMT* by IPO year for the earnings forecast sample. Table 2, Panel D, shows the frequency of *AU9550* and means for *SDRET60* and *OFFER_AMT* by IPO year for the risk sample. All four panels show that AU 9550 disclosure is present in more than 50 percent of IPOs in each year after 2005. Gross IPO proceeds average at little more than $200 million overall. Panel A reveals that internal control deficiencies are more prevalent in IPOs completed in 2007 and 2010. Panel B shows that mean IPO offer prices range from $13.11 in 2010 to $16.46 in 2013. Panel C reveals that companies completing IPOs, on average, are not profitable in the near term after the IPO. The immediate post financial crisis years of 2009 and 2010 are notable exceptions, indicating that companies with stronger earnings prospects completed IPOs during this time. Finally, Panel D shows that the mean return volatility over the 60 trading days after the IPO ranged from 2.7 percent in 2005 and 2006 to 4.0 percent in 2008, which marked the height of the financial crisis.

Table 3 presents descriptive statistics for my dependent and independent variables. Table 3, Panel A, displays descriptive statistics for my dependent variables. The percentage of

observations reporting internal control deficiencies after the IPO (*ICDEF404_A)* is 5.1 percent.[15] *IPOPRICE* has a mean of $15.00 and exhibits great variation, with a standard deviation of $5.91. Companies have an average return on assets in the first year after their IPO of -0.5 percent, but more than half of the companies have a positive return on assets (ROA_{post}). The standard deviations of returns (*SDRET*) and of the market model residuals (*SDRESID*) appear to be distributed similarly. *SDRET* and *SDRESID* are larger over the 250-trading day windows than over the 60-day windows, likely due to underwriters' tapering of price support for the IPO in the aftermarket over time, as well as the expiration of lockup periods (typically 180 days) that increase liquidity.

Table 3, Panel B, displays descriptive statistics for my independent variables. The percentage of observations with AU 9550 disclosure (*AU9550*) is 58.6 percent, while 41.8 percent of observations contain other non-going concern non-standard content (*AU508OTHER*) and 4.3 percent of observations contain going concern uncertainties (*AU508GC*). On average, at the time of the first Section 404(b) report, IPO companies are profitable (*LOSS_A*), liquid (*CRATIO_A*), not at risk of bankruptcy (*ZSCORE_A*), and carry relatively little inventory (*INVENTORY_A*). IPO companies appear to routinely engage high quality auditors (*BIGN*) and half of the IPOs use two or more lead underwriters (*UNDERWRITERS*). Sample IPO companies complete their IPO in an average of 130 days (*IPO_LENGTH*) and issue 12.6 million shares (*SHARES_OFFER*). The mean (median) IPO date turnover (*TURNOVER*) and returns (*INITIALRET*) are 20.7 percent (15.6 percent) and 13.3 percent (6.8 percent), respectively. Statistics for variables included in more than one multivariate model are presented only once for brevity.

[15] Comparatively, of the 5,935 companies Doyle et al. (2007b) identify in the 2003 Compustat database, 779 disclose material weaknesses between August 2002 and 2005, for a rate of 13.1 percent.

Table 4 presents univariate statistics for the dependent variables in my multivariate analyses, by observations with and without *AU9550*. The table shows that IPO companies with *AU9550* are significantly more likely to have post-IPO auditor-reported internal control deficiencies ($p<0.05$, two-tailed), indicating a univariate association between AU 9550 disclosure and poor internal controls (*ICDEF404_A*). I also find a positive and significant association ($p<0.05$, two-tailed) between *AU9550* and post-IPO intermediate-term return volatility (*Log(SDRET250)* and *Log(SDRESID250)*), suggesting that *AU9550* is significantly associated with increased post-IPO risk. I do not find statistically significant univariate associations between *AU9550* and IPO offer prices (*IPOPRICE*) or post-IPO earnings (ROA_{post}). Overall, these results provide univariate support for hypotheses H1 and H4.

I analyze the correlations (not reported) between my independent variable and controls in my multivariate analyses. The pairwise correlations between *AU9550* and each of *BIGN*, *Log(AT)*, *Log(OFFER_AMT)*, *CHGAUDITOR*, *Log(AUDITFEES)*, and *AS5_404* are statistically significant at $p<0.05$, but do not exceed 0.132 in absolute terms. I also perform collinearity diagnostics and find variance inflation factors for all variables are between one and five. Collectively, the results of these analyses suggest multicollinearity is not a significant concern.

4.2 Multivariate Analysis

Table 5 presents the logistic regression results for Model 1. Model 1 includes controls for factors from prior research found to be associated with the likelihood of auditor-reported material weaknesses in ICOFR. The discriminant ability of the model is excellent (ROC=0.81), following Lemeshow and Hosmer (1982). I use Model 1 to test H1, in which I predict that the inclusion of AU 9550 disclosure in the pre-IPO audit report is associated with an increased likelihood of post-IPO auditor-reported deficiencies in ICOFR in the first year the auditor

renders such an opinion. The coefficient for *AU9550* is positive and statistically significant ($p<0.05$, one-tailed). The coefficient for *AU9550* of 1.260 corresponds to an odds ratio of 4.604, which means that a company with AU 9550 disclosure is 4.6 times more likely to subsequently have a material weakness in ICOFR than a company without AU 9550 disclosure. These results provide support for my prediction in H1 that AU 9550 disclosure is associated with an increased likelihood of post-IPO auditor-reported control deficiencies and are consistent with the notion that AU 9550 disclosure reflects a poor internal control environment.

Table 6 presents my estimation of Model 2, which I use to test H2. In H2, I predict a negative association between AU 9550 disclosure and IPO offer prices. The coefficient for *AU9550* is -0.317 and statistically significant ($p<0.10$, one-tailed), after controlling for other factors associated with IPO offer prices. The sign and magnitude of coefficient for *AU9550* suggests that the presence of AU 9550 disclosure is associated with an IPO offer price per share that is $0.32 lower. These results provide support for H2, indicating that AU 9550 disclosure is associated with lower IPO offer prices.

Table 7 presents the results for my test of H3. I estimate Model 3, which includes controls for factors that may be associated with future earnings, to test H3. In H3, I expect a negative association between AU 9550 disclosure and post-IPO earnings. Consistent with my prediction, the coefficient for *AU9550* is negative and statistically significant ($p<0.10$, one-tailed). The coefficient for *AU9550* of -0.013 suggests that AU 9550 disclosure is associated with post-IPO return on assets that is, on average, 1.3 percent lower.

Table 8 presents the results for Model 4 and my test of H4. H4 predicts that the inclusion of AU 9550 disclosure in the pre-IPO audit report is associated with increased post-IPO risk, where risk is measured using the standard deviation of returns (*SDRET[60, 250]*) and the

standard deviation of unexplained returns (*SDRESID[60, 250]*) over the [60, 250] trading days after the IPO date. The coefficient for *AU9550* is positive and not statistically significant in Columns 1 and 3, where the dependent variables are *Log(SDRET60)* and *Log(SDRESID60)*, respectively, and positive and statistically significant in Columns 2 ($p<0.05$, one-tailed) and 4 ($p<0.10$, one-tailed), where the dependent variables are *Log(SDRET250)* and *Log(SDRESID250)*, respectively.[16] These results indicate that AU 9550 disclosure is associated with increased post-IPO risk beyond the first quarter after the IPO, providing support for H3b.

To summarize, I find results consistent with my hypotheses. AU 9550 disclosure is associated with a higher likelihood of auditor-reported material weaknesses in ICOFR in the first year the auditor opines on ICOFR. I also find that AU 9550 disclosure is associated with lower IPO offer prices. Finally, I find that AU 9550 disclosure is associated with lower post-IPO earnings and increased post-IPO risk. These results collectively suggest that voluntary AU 9550 disclosure is informative, as it conveys information relevant to the assessment of information quality, company value, and future performance and risk.

4.3 Selection Bias

Auditors' decisions to add AU 9550 disclosure to the audit report do not arise randomly and pose a potential source of selection bias. I attempt to address the potential endogeneity in my setting using the Heckman (1979) procedure. I employ the Heckman procedure because it accommodates unobservable factors that may contribute to selection bias (Tucker 2010). This is important in my setting because there is limited data publicly available to proxy for the auditor's private information that informs the pre-IPO decision.

[16] The lack of statistically significant results over the 60 trading day window may be attributed to the presence of lock-up periods that restrict pre-IPO investor sales of shares, underwriter price stabilization activities, and limited opportunities for short selling, all of which can impact return volatility.

In the first stage of the Heckman procedure, I use probit regression to estimate the following model for each of my four samples (material weakness, IPO offer price, earnings, and risk):

$$AU9550 = \beta_0 + \beta_1 AU9550\_PREV + Model\ N\ Controls + \varepsilon \quad (5)$$

AU9550_PREV, my exclusion variable, equals one if a peer IPO company's audit report contains AU 9550 disclosure, and zero otherwise. I identify peer IPO companies as those in the same industry that complete (i.e., do not withdraw) an IPO and are audited by a different auditor.[17] From the eligible peer IPO companies, I select the single peer IPO company that completed its IPO most recently prior to the filing date of the Company's registration statement that contained the audit report. *Model N Controls* refer to the controls in Model N, where N=1, 2, 3, or 4. *AU9550* is as previously defined. In untabulated results, the coefficient for *AU9550_PREV* is statistically significant ($p<0.01$, two-tailed) in all regressions.

From the estimation of Model 5 for each of my samples, I calculate the inverse Mills' ratio and estimate the following second stage model:

$$Model\ N\ Dep.Var. = \beta_0 + \beta_1 AU9550 + \beta_2 MILLS + Model\ N\ Controls + \varepsilon \quad (6)$$

Model N Dep. Var. refers to the dependent variable from Model N, where N=1, 2, 3, or 4. *MILLS* equals the inverse Mills' ratio calculated from the first stage estimation.

To be a valid exclusion variable, *AU9550_PREV* should be correlated with *AU9550*, but uncorrelated with each *MW*, *IPOPRICE*, ROA_{post}, and *Risk*. I expect *AU9550* and *AU9550_PREV* to be correlated because the inclusion of AU 9550 disclosure by the auditor of a peer company

[17] I consider peer IPO companies audited by a different auditor because audit firm and audit office experiences are incrementally significant predictors of financial reporting quality (Lennox and Li 2014). Identifying peer IPO companies with the same auditor may confound auditor experiences with client financial reporting or internal controls quality conveyed through AU 9550 disclosure. Additionally, a practically motivated reason for not considering IPOs by the same audit firm is that an audit firm is not likely to audit consecutively filed IPOs in the same industry. Nevertheless, untabulated analysis shows that my results are consistent when restricting my analysis of prior AU 9550 disclosure to peer IPO companies with the same auditor.

that recently completed its IPO may influence the auditor's decision to add AU 9550 disclosure. On the one hand, auditors can use other auditors' AU 9550 disclosure for recent IPOs as precedential leverage during audit report negotiations with the client. On the other hand, IPO companies that observe peers complete their offering with AU 9550 disclosure at lower offering prices are less willing to accept this non-standard disclosure. I do not expect *AU9550_PREV* to be correlated with the Model 6 dependent variables because AU 9550 disclosure reflects idiosyncratic financial information and internal controls quality. Therefore, the non-standard content of a peer IPO company's audit report is not relevant to the assessment of the IPO company's financial reporting or internal controls quality.

Table 9 presents the results of the estimation of Model 6. Column 1 shows a positive and statistically significant ($p<0.01$, one-tailed) association between *AU9550* and *MW*, providing continued support for H1. The coefficient for *AU9550* is negative, but not statistically significant in Column 2.[18] Column 3 reveals a negative and statistically significant ($p<0.10$, one-tailed) association between *AU9550* and ROA_{post}, providing further support for H3. Finally, the associations between *AU9550* and each *Log(SDRET250)* and *Log(SDRESID250)* are positive and statistically significant ($p<0.05$, one-tailed), consistent with my prediction in H4. The associations between *AU9550* and returns-based risk measures calculated over the 60 trading days after the IPO are not statistically significant. The coefficient for *MILLS* is statistically significant at $p<0.05$ (two-tailed) in Columns 3 ($p<0.05$, two-tailed) and 5 ($p<0.10$, two-tailed). The lack of statistical significance for *MILLS* in the other models suggests *AU9550_PREV* may be an imperfect exclusion variable in these models. Overall, the initial results in support of hypotheses H1, H3, and H4 continue to hold after controlling for selection bias.

[18] In untabulated analyses, I confirm that the association between AU 9550 disclosure and two complementary measures of the IPO offer price (midpoint of the preliminary offer price range and IPO date closing price), discussed below, are robust to controls for selection bias.

CHAPTER 5

ADDITIONAL ANALYSES

More prestigious auditors are associated with IPOs that are inherently less risky and have better long-term performance (Michaely and Shaw 1995). In my sample, roughly 90 percent of IPO companies engage a Big N auditor, providing little opportunity for companies to signal their quality based on auditor choice. However, to confirm that IPO companies not audited by Big N auditors are not driving my results, I re-estimate my multivariate models on the subset of IPO companies that engage a Big N auditor for their IPO. Table 10 presents the results of this analysis.[19] *AU9550* is statistically significant and in the predicted direction in Columns 1, 3, and 4. The statistically insignificant coefficient for *AU9550* indicates that the IPO companies with non-Big N auditors primarily drive the association between AU 9550 disclosure and IPO pricing presented in Table 6.

IPO companies provide information pertaining to internal controls in the risk factors section of the IPO registration statement (Basu, Krishnan, Lee, and Zhang 2013). As such, management-provided risk factor disclosures are a potential additional source of internal control-related information available to financial statement users. To confirm that AU 9550 disclosure is informative, incremental to management-provided internal control risk factor disclosures, I search the risk factors section of the registration statements for 'internal control'. I include an indicator variable that equals one if the company mentions internal controls, and zero otherwise, in each of my multivariate models. In untabulated analyses, I re-estimate Models 1 through 4 after including this additional control and find that my results with respect to *AU9550* are unchanged.

[19] For brevity, I re-estimate Model 4 using only *Log(SDRET250)* as the dependent variable.

5.1 Material Weakness Additional Analyses

Management is required to assess the effectiveness of the company's internal controls in accordance with Sections 404(a) and 302 after the IPO.[20] I re-estimate Model 1 using two alternative dependent variables.[21] One, *ICDEF404_M* equals one if the first Section 404(a) report (after the IPO) in which the company's management opines on the effectiveness of ICOFR identifies internal control deficiencies, and zero otherwise. Two, *ICDEF302* equals one if management's first Section 302 report (after the IPO) identifies internal control deficiencies, and zero otherwise. The results of these re-estimations are presented in Table 11. *AU9550* is not statistically significant in either re-estimation, indicating that *AU9550* is not informative as to Section 404(a) or Section 302 internal control deficiencies. Prior research that examines internal controls under both Sections 302 and 404 also finds inconsistent results between the two sections of SOx (e.g., Beneish et al. 2008). Differing results can largely be attributed to management's tendency to detect fewer, less severe, and less pervasive internal control deficiencies (Bedard and Graham 2011). The inconsistent results suggest that AU 9550 disclosure may indicate more pervasive internal controls problems, validating its associations with IPO offer pricing and post-IPO earnings and risk.

There are 28 companies in my sample whose first Section 404(b) report identifies ineffective internal controls. This frequency suggests that the incidence of a control deficiency for IPO companies is a relatively rare event. In finite samples of rare events data, the method of computing probabilities of events in logistic analysis is and can lead to errors in the same

[20] Whereas Section 302 primarily addresses controls over disclosures and does not require independent auditor attestation, Section 404 more broadly concerns internal controls over financial reporting and does require auditor attestation. Further, management is required to assess control effectiveness in accordance with Section 302 as early as the first quarter after the IPO, but has two years (minimum) before Section 404(a) attestation is required.

[21] Control variables are re-computed using data from the first fiscal year in which management provides its Section 404(a) report.

direction as biases in the coefficients (King and Zeng 2001). To confirm that my results are robust to correcting for this potential bias, I re-estimate Model 1 using rare events logistic regression (King and Zeng 2001) and Firth logistic regression (Firth 1993; Heinze and Schemper 2002). The untabulated results show that the coefficient for *AU9550* remains positive and statistically significant ($p<0.05$, one-tailed) in both estimations.

5.2 Offer Price Additional Analyses

Bartov et al. (2002) consider three complimentary values for the IPO offer price: the midpoint of the preliminary range for the offer price; the final offer price; and, the price at the end of the first trading day. The tabulated results for Model 2 are based on the final offer price as the dependent variable. Table 12 presents the results of the re-estimation of Model 2 using the two alternative measures for the IPO offer price. *MIDPOINT* equals the midpoint of the preliminary offer price range. *FIRSTDAYPRC* equals the closing share price on the IPO date. Table 12, Column 1, shows a negative and significant ($p<0.01$, one-tailed) coefficient for *AU9550*, indicating a negative association between AU 9550 disclosure and the midpoint of the preliminary offer price range. The coefficient for *AU9550* remains negative and significant ($p<0.01$) in Column 2, where *FIRSTDAYPRC* is the dependent variable. These results are consistent with those presented in Table 6, providing additional evidence as to the link between AU 9550 disclosure and IPO pricing.

The Bartov et al. (2002) IPO offer pricing model that I adopt as a starting point for Model 2 is a per share valuation model. Number of shares outstanding is an appealing scalar for IPO research that inherently includes numerous companies with negative earnings and book value of equity and little or no pre-IPO revenue – all of which are common scaling alternatives in accounting research. Moreover, in the IPO setting, where companies seek to raise a finite amount

of capital that is a function of the IPO offer price and number of shares issued, number of shares can be informative. The counterpoint suggests that shares outstanding is a relatively uninformative scalar in the sense that number of shares need not be indicative of size or resources available. Acknowledging this perspective, I re-estimate Model 2 using pre-IPO total assets and net property, plant, and equipment as scalars instead of shares outstanding. In untabulated results, while the coefficient for *AU9550* remains negative in both re-estimations, it is not statistically significant. These inconsistent results underscore the sensitivity of empirical research to design trade-offs.

There is a vast literature in accounting and finance pertaining to IPO offer price revisions and IPO underpricing (see Ritter and Welch (2002) for a review). Greater ex ante uncertainty about an IPO's value is positively associated with expected underpricing (Beatty and Ritter 1986; Miller and Reilly 1987; Draho 2001). In the context of my study, AU 9550 disclosure that reflects poor internal controls is likely to increase investor uncertainty as to the quality of financial information, which may then manifest in greater underpricing (higher post IPO returns). Alternatively, post-IPO returns may be lower if poor internal controls adversely affect company operating performance that is then reflected in returns. I test for a significant association between AU 9550 disclosure and changes in the IPO offer price in both the pre- and after-markets. *PRICREV* measures pre-market changes in the IPO offer price and is calculated as the difference between *IPOPRICE* and *MIDPOINT*, scaled by *MIDPOINT*. I analyze changes in the after-market price using various return windows beginning with the IPO date return (*INIITIALRET*) and cumulative returns over the 10, 60, 150, and 250 trading days after the IPO date (inclusive) (*RET10*, *RET60*, *RET150*, and *RET250*, respectively). I re-estimate Model 2, also controlling for *TURNOVER*, using these return-based dependent variables and tabulate the results in Table 13.

The coefficient for *AU9550* is positive and statistically significant (p<0.10, two-tailed) in Column 1, indicating a positive association between AU 9550 disclosure and pre-IPO offer price revisions. I do not find a significant association between *AU9550* and *INITIALRET* in Column 2. In Columns 3 through 6, the coefficients for *AU9550* are negative and significant (p<0.10, two-tailed). While asymmetric information theories are unlikely to be the primary determinant of underpricing (Ritter and Welch 2002), my results do suggest AU 9550 disclosure may reflect a poorer information environment or lower near-term prospects that manifest in lower returns for a year after the IPO date.

5.3 Post-IPO Earnings Additional Analyses

As discussed in the development of H3, the internal control environment can have not only a real effect on earnings through its impact on company operations, but also a financial reporting effect through its impact on the quality of earnings. To better understand whether the association between AU 9550 disclosure and post-IPO earnings is attributable to real activities or financial reporting quality, I bifurcate earnings into its accrual and cash flow components. $ACCRUAL_{post}$ equals income statement-based accruals, calculated as the difference between earnings before extraordinary items and operating cash flows, scaled by total assets for the first fiscal year ended after the IPO. CFO_{post} equals operating cash flow scaled by total assets for the first fiscal year ended after the IPO. I re-estimate Model 3 using these alternative dependent variables, as well as controlling for pre-IPO accruals and operating cash flow, respectively, and present the results in Table 14. Column 1 shows a negative and statistically significant (p<0.05, one-tailed) association between *AU9550* and $ACCRUAL_{post}$. Column 2 does not show a statistically significant association between *AU9550* and OCF_{post}. These results suggest that the significant association between *AU9550* and ROA_{post} can largely be attributed to the relation

between internal controls and financial reporting quality, rather than to the relation between internal controls and operating activities. This result is consistent with the notion that lower accruals quality stems from company-level controls that are more difficult to "audit around" (Doyle et al. 2007a).

CHAPTER 6

CONCLUSION

This study investigates the informativeness of voluntary AU 9550 disclosure in audit reports included in IPO registration statements. Using a sample of initial public offerings completed on U.S. equity exchanges between 2005 and 2014, I find that voluntary non-standard audit report disclosure provided in accordance with AU Section 9550 is associated with a higher likelihood of post-IPO auditor-reported internal control deficiencies, lower IPO offer prices, lower post-IPO earnings, and higher post-IPO risk. My post-IPO material weakness, earnings, and risk results are robust to addressing the endogenous nature of the auditor's decision to add AU 9550 disclosure to the audit report. Overall, my results indicate that voluntary auditor-provided internal controls-related disclosures are informative in the IPO setting.

My research makes three primary contributions to the accounting literature. One, I contribute to the voluntary disclosure literature by documenting that voluntary, internal controls-related auditor disclosures are informative as to financial information quality and company risk in the post-SOx environment. This finding should be of interest to IPO investors and to regulators reforming the current auditor's reporting model. Two, I contribute to the internal controls literature by identifying information that is informative of future auditor-reported deficiencies in internal controls over financial reporting. This result should be of interest to legislators that recently passed legislation to further delay the public communication of internal control deficiencies that may be known at the IPO date, for qualifying IPO companies. Finally, I contribute to the audit report literature by studying a previously unexamined type of auditor disclosure and providing evidence as to the informativeness of audit report content strictly in the post-SOx regulatory environment.

I conduct my research in the IPO setting where companies are not required, nor are they expected, to have an external auditor opine on the effectiveness of their internal controls. As well, the information environment for IPO companies is not as complex as that for existing public companies. Future research may examine whether AU 9550 disclosure is differentially informative for existing public companies. Subsequent studies may also consider how non-equity investor financial statement users and information intermediaries, such as analysts, appear to use these non-standard audit report disclosures.

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TABLES

TABLE 1

SAMPLE SELECTION

Completed IPOs downloaded from NASDAQ 2005 - 2014	1,669
Less IPOs with an offer price of $5 per share or less and is non-missing	(109)
Less IPOs with pre-IPO assets of $1,000,000 or less or missing	(328)
Less IPOs for which the audit report was not available in the registration statement	(125)
Less IPOs with pre-IPO Section 404(b) opinions	(16)
Less non-operating entity IPOs	(8)
Observations eligible for inclusion in the multivariate analysis	1,083
Less IPOs without post-IPO Section 404(b) data in AuditAnalytics	(339)
Less IPOs with Section 404(b) data in AuditAnalytics more than 27 months after the IPO	(40)
Less IPOs missing data for control variables	(155)
Total sample for the material weakness model	549
Less IPOs missing data for control variables	(38)
Total sample for the offer price model	1,045
Less IPOs with ROA_{pre} of less than -100 percent	(58)
Less IPOs without Compustat data for a fiscal year ending with a year after the IPO date	(26)
Less IPOs missing data for control variables	(133)
Total sample for the earnings model	866
Less IPOs missing data in CRSP	(234)
Less IPOs missing data for control variables	(15)
Total sample for the risk model	834

Table 1 details my sample selection procedure.

TABLE 2

NON-STANDARD AUDIT REPORT DISCLOSURE BY IPO YEAR

Panel A: *AU9550* by year for the material weakness sample

		AU9550		*ICDEF404_A*	*OFFER_AMT*
IPO Year	N	n=1	*%*	n=1	Mean ($mil)
2005	95	43	45.26%	3	192.91
2006	102	65	63.73%	4	227.75
2007	106	71	66.98%	7	201.48
2008	20	12	60.00%	1	372.86
2009	34	19	55.88%	2	334.65
2010	80	45	56.25%	7	168.58
2011	71	42	59.15%	3	228.14
2012	38	26	68.42%	1	276.78
2013	3	1	33.33%	0	682.35
Total	549	324	59.02%	28	225.86

Panel B: *AU9550* by year for the IPO offer price sample

		AU9550		*IPOPRICE*	*OFFER_AMT*
IPO Year	N	n=1	*%*	Mean	Mean ($mil)
2005	159	64	40.25%	14.68	160.98
2006	162	99	61.11%	15.01	200.89
2007	174	114	65.52%	14.86	220.13
2008	29	16	55.17%	13.66	255.84
2009	50	31	62.00%	14.00	314.71
2010	116	69	59.48%	13.11	153.64
2011	92	54	58.70%	15.59	230.80
2012	96	61	63.54%	15.85	189.01
2013	167	104	62.28%	16.46	230.03
Total	1,045	612	58.56%	15.00	205.94

(continued on the next page)

TABLE 2 (continued)

Panel C: *AU9550* by year for the earnings sample

		AU9550		ROA_{post}	*OFFER_AMT*
IPO Year	N	n=1	*%*	Mean	Mean ($mil)
2005	128	58	45.31%	0.001	166.92
2006	128	83	64.84%	0.011	207.38
2007	140	94	67.14%	-0.014	190.52
2008	26	16	61.54%	-0.007	300.19
2009	46	28	60.87%	0.064	284.22
2010	99	58	58.59%	0.026	156.70
2011	80	47	58.75%	-0.007	218.21
2012	84	54	64.29%	-0.009	190.44
2013	134	79	58.96%	-0.056	263.82
2014	1	1	100.00%	-0.056	310.00
Total	866	518	59.82%	-0.005	207.96

Panel D: *AU9550* by year for the risk sample

		AU9550		*SDRET60*	*OFFER_AMT*
IPO Year	N	n=1	*%*	Mean	Mean ($mil)
2005	134	55	41.04%	0.027	166.12
2006	137	84	61.31%	0.027	203.25
2007	130	85	65.38%	0.033	192.02
2008	23	11	47.83%	0.040	295.32
2009	41	25	60.98%	0.029	294.75
2010	81	46	56.79%	0.030	162.10
2011	71	42	59.15%	0.036	252.15
2012	78	50	64.10%	0.030	180.02
2013	138	87	63.04%	0.031	234.19
2014	1	1	100.00%	0.033	310.00
Total	834	486	58.27%	0.030	205.81

Table 2 describes my dependent variables and independent variable of interest by IPO year.

TABLE 3

DESCRIPTIVE STATISTICS

Panel A: Dependent variables

Variable	N	Mean	Std. Dev.	5%	25%	50%	75%	95%
ICDEF404_A	549	0.051	0.220	0.000	0.000	0.000	0.000	1.000
IPOPRICE	1,045	15.000	5.907	7.000	11.000	14.000	18.000	24.500
ROA_{post}	866	-0.005	0.174	-0.371	-0.036	0.028	0.084	0.203
SDRET60	834	0.030	0.013	0.013	0.021	0.029	0.037	0.055
SDRET250	834	0.033	0.013	0.016	0.024	0.031	0.040	0.057
SDRESID60	834	0.029	0.013	0.013	0.020	0.028	0.036	0.052
SDRESID250	834	0.031	0.013	0.015	0.022	0.029	0.039	0.054

Panel B: Independent and control variables

Variable	N	Mean	Std. Dev.	5%	25%	50%	75%	95%
AU9550	1,045	0.586	0.492	0.000	0.000	1.000	1.000	1.000
AU508OTHER	1,045	0.418	0.493	0.000	0.000	0.000	1.000	1.000
AU508GC	1,045	0.043	0.203	0.000	0.000	0.000	0.000	0.000
LOSS_A	549	0.288	0.453	0.000	0.000	0.000	1.000	1.000
CRATIO_A	549	3.351	3.257	0.692	1.463	2.382	3.943	10.101
INVENTORY_A	549	0.060	0.097	0.000	0.000	0.010	0.087	0.266
ZSCORE_A	549	-3.171	1.741	-5.124	-4.495	-3.608	-2.209	-0.264
MKTVAL404_A ($mil)	549	1,344.427	2,179.497	97.891	288.128	621.055	1,478.609	4,824.631
SQEMPLOYEES_A	549	105.361	817.991	0.000	0.069	0.679	7.290	227.226
SEGMENTS_A	549	2.056	2.127	0.000	1.000	1.000	3.000	7.000
BIGN404	549	0.971	0.168	1.000	1.000	1.000	1.000	1.000
CHGAUDITOR_A	549	0.036	0.188	0.000	0.000	0.000	0.000	0.000
NAFRATIO_A	549	0.146	0.140	0.000	0.020	0.118	0.235	0.410
AUDITFEES_A ($mil)	549	1.358	1.373	0.340	0.633	0.974	1.501	3.509

(continued on the next page)

TABLE 3 (continued)

Variable	N	Mean	Std. Dev.	5%	25%	50%	75%	95%
AS5_404_A	549	0.814	0.389	0.000	1.000	1.000	1.000	1.000
BIGN	1,045	0.902	0.297	0.000	1.000	1.000	1.000	1.000
UNDERWRITERS	1,045	2.040	0.881	1.000	1.000	2.000	2.000	4.000
IPO_LENGTH	1,045	129.658	122.516	19.000	50.000	98.000	152.000	371.000
SHARES_OFFER (000s)	1,045	12,606.827	13,355.781	2,900.000	5,600.000	8,500.000	13,430.000	35,294.118
POSEPS	1,045	0.712	1.555	0.000	0.000	0.158	0.701	3.206
NEGEPS	1,045	-0.353	0.741	-1.849	-0.387	0.000	0.000	0.000
POSBV	1.045	4.021	9.287	0.000	0.000	0.618	4.014	18.155
NEGBV	1.045	-1.238	2.481	-6.424	-1.384	0.000	0.00	0.000
FLOAT	1.045	0.389	0.277	0.083	0.208	0.289	0.465	1.000
RDPS	1.045	0.275	0.531	0.000	0.000	0.000	0.376	1.273
NASD_ADJ	1.045	2,529.148	427.775	2,042.143	2,228.739	2,448.752	2,696.565	3,487.719
LITRISK	1.045	0.416	0.493	0.000	0.000	0.000	1.000	1.000
TECH	1.045	0.237	0.426	0.000	0.000	0.000	0.000	1.000
AS5	1,045	0.533	0.499	0.000	0.000	1.000	1.000	1.000
DODDFRANK	1,045	0.281	0.450	0.000	0.000	0.000	1.000	1.000
JOBS	1,045	0.222	0.416	0.000	0.000	0.000	0.000	1.000
ROA_{pre}	866	-0.030	0.261	-0.584	-0.091	0.023	0.100	0.303
NWC_{pre}	866	0.172	0.305	-0.210	-0.002	0.128	0.336	0.725
$LEVERAGE_{pre}$	866	0.310	0.349	0.000	0.017	0.219	0.488	0.902
AT_{pre} ($mil)	866	694.795	1,823.865	18.59	55.231	138.772	509.341	3,166.870
OFFER_AMT ($mil)	866	207.958	257.748	35.000	75.012	120.471	232.875	660.000
TURNOVER	834	0.207	0.192	0.025	0.096	0.156	0.247	0.607
INITIALRET	834	0.133	0.219	-0.095	0.000	0.068	0.221	0.594
MKTVAL ($mil)	834	760.539	1,249.487	75.847	222.459	391.905	794.738	2,487.674

Table 3 presents descriptive statistics for dependent, independent, and control variables.

TABLE 4

UNIVARIATE STATISTICS FOR DEPENDENT VARIABLES

		AU9550 = 1		*AU9550 = 0*			
Variables	N	Mean	Median	Mean	Median	Mean Diff.	Test Statistic
ICDEF404_A	549	0.068	0.000	0.027	0.000	0.051	2.165**
IPOPRICE	1,045	14.827	14.000	15.243	14.500	-0.0416	-1.122
ROA_{post}	866	-0.008	0.023	0.001	0.033	-0.009	-0.761
Log(SDRET60)	834	0.031	0.029	0.029	0.027	0.001	1.579
Log(SDRET250)	834	0.033	0.032	0.031	0.029	0.002	2.340**
Log(SDRESID60)	834	0.029	0.028	0.028	0.026	0.001	1.479
Log(SDRESID250)	834	0.032	0.030	0.030	0.028	0.002	2.404**

Table 4 presents univariate statistics by *AU9550* for dependent variables.
*** p<0.01, ** p<0.05, and * p<0.10

TABLE 5

ASSOCIATION BETWEEN AU 9550 DISCLOSURE AND POST-IPO AUDITOR-REPORTED MATERIAL WEAKNESSES

	Expected Sign	*ICDEF404_A*
AU9550	+ (H1)	1.260**
		(2.402)
AU508OTHER	?	-0.189
		(-0.431)
AU508GC	+	0.668
		(0.560)
LOSS_A	+	0.453
		(0.897)
CRATIO_A	-	-0.032
		(-0.361)
INVENTORY_A	+	0.365
		(0.165)
ZSCORE_A	-	-0.119
		(-0.860)
Log(MKTVAL404_A)	-	-1.057***
		(-4.066)
SQEMPLOYEES_A	+	-0.000
		(-0.411)
Log(SEGMENTS_A)	+	-0.381
		(-1.005)
BIGN404	?	-2.591***
		(-2.995)
CHGAUDITOR_A	+	1.198
		(1.296)
NAFRATIO_A	-	0.498
		(0.305)
Log(AUDITFEES_A)	?	1.685***
		(3.940)
LITRISK	+	-0.316
		(-0.693)
AS5_404_A	?	-0.150
		(-0.247)
Constant		-18.209***
		(-3.555)
Observations		549
Pseudo R-square		0.182
ROC		0.81

Table 5 presents the results of the estimation of Model 1, used to test H1. *ICDEF404_A* equals one if the first Section 404(b) report after the IPO identifies internal control deficiencies, and zero otherwise. *AU9550* equals one if the audit report included in the IPO registration statement contains voluntary disclosure in accordance with AU Section 9550, and zero otherwise. Refer to Appendix B for all other variable definitions.
z statistics in parentheses. *** p<0.01, ** p<0.05, * p<0.10.

TABLE 6

ASSOCIATION BETWEEN AU 9550 DISCLOSURE AND IPO PRICING

	Expected Sign	*IPOPRICE*
AU9550	- (H2)	-0.317*
		(-1.517)
AU508OTHER	?	-0.454
		(-1.463)
AU508GC	-	-2.100
		(-1.444)
BIGN	+	0.013
		(0.018)
Log(UNDERWRITERS)	+	2.127**
		(2.764)
Log(IPO_LENGTH)	?	-0.202
		(-1.004)
Log(SHARES_OFFER)	?	1.537***
		(3.807)
POSEPS	+	0.509***
		(5.193)
NEGEPS	+	-0.413
		(-0.606)
POSBV	+	0.081**
		(2.557)
NEGBV	+	-0.043
		(-0.383)
FLOAT	-	-1.527
		(-1.702)
RDPS	?	-0.208
		(-0.276)
NASD_ADJ	+	0.000
		(0.093)
LITRISK	-	-0.897
		(-1.164)
TECH	?	-1.373*
		(-2.020)
AS5	?	-1.809**
		(-2.639)
DODDFRANK	?	1.730**
		(2.343)
JOBS	?	0.480
		(0.636)
Constant		-9.896
		(-1.222)
Observations		1,045
R-squared		0.197

Table 6 presents the results of the estimation of Model 2, used to test H2. *IPOPRICE* equals the final IPO price per share. *AU9550* equals one if the audit report included in the IPO registration statement contains voluntary disclosure in accordance with AU Section 9550, and zero otherwise. Refer to Appendix B for all other variable definitions.
t statistics in parentheses. *** p<0.01, ** p<0.05, * p<0.10. Standard errors are clustered by industry based on the Frankel, Johnson, and Nelson (2002) industry classification.

TABLE 7

ASSOCIATION BETWEEN AU 9550 DISCLOSURE AND POST-IPO EARNINGS

	Expected Sign	ROA_{post}
AU9550	- (H3a)	-0.013*
		(-2.062)
AU508OTHER	?	0.015
		(1.592)
AU508GC	-	-0.232**
		(-2.298)
ROA_{pre}	+	0.440***
		(11.090)
NWC_{pre}	+	-0.044*
		(-1.779)
$LEVERAGE_{pre}$	+	-0.019
		(-0.981)
$Log(AT_{pre})$	?	-0.008**
		(-2.364)
Log(OFFER_AMT)	+	0.030***
		(3.071)
Year Indicators		Included
Constant		-0.530**
		(-2.928)
Observations		866
R-squared		0.553

Table 7 presents the results for the estimation of Model 3, used to test H3a. ROA_{post} equals return on assets for the first fiscal year ended after the IPO. *AU9550* equals one if the audit report included in the IPO registration statement contains voluntary disclosure in accordance with AU Section 9550, and zero otherwise. Refer to Appendix B for all other variable definitions.

t statistics in parentheses. *** p<0.01, ** p<0.05, * p<0.10. Standard errors are clustered by industry based on the Frankel et al. (2002) industry classification.

TABLE 8

ASSOCIATION BETWEEN AU 9550 DISCLOSURE AND POST-IPO RISK

	Expected Sign	(1) *Log(SDRET60)*	(2) *Log(SDRET250)*	(3) *Log(SDRESID60)*	(4) *Log(SDRESID250)*
AU9550	+ (H3b)	0.001	0.002**	0.001	0.001*
		(1.063)	(2.197)	(0.819)	(1.884)
AU508OTHER	?	-0.000	0.001	-0.000	0.000
		(-0.487)	(1.089)	(-0.257)	(0.761)
AU508GC	+	0.005***	0.005**	0.005***	0.005***
		(3.071)	(2.750)	(3.130)	(3.138)
BIGN	?	0.003**	0.000	0.002**	0.000
		(2.482)	(0.179)	(2.216)	(0.220)
Log(UNDERWRITERS)	-	-0.002*	-0.002	-0.002*	-0.001
		(-1.880)	(-1.049)	(-1.876)	(-0.762)
Log(IPO_LENGTH)	-	0.000	0.000	0.000	0.000
		(0.942)	(0.596)	(0.808)	(0.341)
FLOAT	-	-0.017***	-0.013**	-0.017***	-0.014**
		(-5.000)	(-2.429)	(-5.017)	(-2.879)
TURNOVER	+	0.009**	0.005	0.008**	0.005
		(2.539)	(1.223)	(2.384)	(1.254)
INITIALRET	+	0.009***	0.004**	0.009***	0.003**
		(4.757)	(2.377)	(4.712)	(3.056)
Log(MKTVAL)	-	-0.002***	-0.003**	-0.003***	-0.003***
		(-3.724)	(-2.666)	(-4.187)	(-3.302)
LITRISK	+	0.006***	0.006**	0.006***	0.006**
		(3.783)	(2.336)	(3.602)	(2.962)
TECH	+	0.003**	0.002	0.002*	0.002
		(2.188)	(0.976)	(1.969)	(1.405)
AS5	?	0.003***	0.003***	0.002***	0.001
		(4.201)	(4.120)	(3.309)	(1.615)
DODDFRANK	?	0.001	-0.002	0.000	-0.001
		(0.480)	(-1.750)	(0.324)	(-0.714)
JOBS	?	-0.004***	-0.002	-0.002***	-0.001
		(-6.146)	(-1.263)	(-3.435)	(-0.884)
Constant		0.076***	0.084***	0.083***	0.094***
		(4.582)	(3.518)	(4.951)	(4.135)
Observations		834	834	834	834
R-squared		0.267	0.192	0.276	0.220

Table 8 presents the results for the estimation of Model 4, used to test H3a. The dependent variables for Columns 1 and 2 are *Log(SDRET60)* and *Log(SDRET250)*, respectively. The dependent variables for Columns 3 and 4 are *Log(SDRESID60)* and *Log(SDRESID250)*, respectively. *SDRET60(250)* equals the standard deviation of daily returns over the 60 (250) trading days after the IPO date. *SDRESID60(250)* equals the standard deviation of the residuals from the market model estimated over the 60 (250) trading days after the IPO date. *AU9550* equals one if the audit report included in the IPO registration statement contains voluntary disclosure in accordance with AU Section 9550, and zero otherwise. Refer to Appendix B for all other variable definitions.

t statistics in parentheses. *** p<0.01, ** p<0.05, * p<0.10. Standard errors are clustered by industry based on the Frankel et al. (2002) industry classification.

TABLE 9

CONTROLLING FOR SELECTION BIAS

	(1) *ICDEF404_A*	(2) *IPOPRICE*	(3) ROA_{post}	(4) *Log(SDRET60)*	(5) *Log(SDRET250)*	(6) *Log(SDRESID60)*	(7) *Log(SDRESID250)*
AU9550	1.276***	-0.284	-0.011*	0.001	0.002**	0.001	0.001**
	(2.424)	(-1.209)	(-1.733)	(1.009)	(2.256)	(0.777)	(1.885)
MILLS	1.658	1.563	0.081**	-0.002	0.010*	-0.003	0.008
	(0.635)	(0.762)	(2.354)	(-0.464)	(1.881)	(-0.757)	(1.406)
Controls	Included	Included	Included	Included	Included	Included	Included
Constant	-16.893***	-11.465	-0.462**	0.075***	0.088***	0.081***	0.097***
	(-3.122)	(-1.376)	(-2.717)	(4.742)	(3.790)	(5.071)	(4.264)
Observations	548	1,042	862	831	831	831	831
(Pseudo) R-square	0.184	0.198	0.555	0.268	0.195	0.277	0.223
ROC	0.82	N/A	N/A	N/A	N/A	N/A	N/A

Table 9 presents the results for the estimation of Model 6. *ICDEF404_A* equals one if the first Section 404(b) report after the IPO identifies internal control deficiencies, and zero otherwise. *IPOPRICE* equals the price per share at which the IPO company's shares are initially offered for sale to the public. ROA_{post} equals return on assets for the first fiscal year ended after the IPO. *SDRET[60, 250]* equals the standard deviation of daily returns over the [60, 250] trading days after the IPO date. *SDRESID[60, 250]* equals the standard deviation of the residuals from the market model estimated over the [60, 250] trading days after the IPO date. *AU9550* equals one if the audit report included in the IPO registration statement contains voluntary disclosure in accordance with AU Section 9550, and zero otherwise.

z (t) statistics in parentheses for logistic (ordinary least squares) regression. *** p<0.01, ** p<0.05, * p<0.10. Standard errors in Columns 2 through 7 are clustered by industry based on the Frankel et al. (2002) industry classification.

TABLE 10

BIG N AUDITOR SUB-SAMPLES

	(1) *ICDEF404_A*	(2) *IPOPRICE*	(3) ROA_{post}	(4) *Log(SDRET250)*
AU9550	1.183**	-0.282	-0.013*	0.001*
	(2.243)	(-1.140)	(-1.766)	(1.446)
Controls	Included	Included	Included	Included
Constant	-24.152***	-13.675*	-0.554**	0.092***
	(-4.162)	(-1.866)	(-2.561)	(4.252)
Observations	533	943	786	744
(Pseudo) R-square	0.163	0.198	0.562	0.202
ROC	0.81	N/A	N/A	N/A

Table 10 presents the results for the estimation of Models 1, 2, 3, and 4. *ICDEF404_A* equals one if the first Section 404(b) report after the IPO identifies internal control deficiencies, and zero otherwise. *IPOPRICE* equals the price per share at which the IPO company's shares are initially offered for sale to the public. ROA_{post} equals return on assets for the first fiscal year ended after the IPO. *SDRET250* equals the standard deviation of daily returns over the 250 trading days after the IPO date. *AU9550* equals one if the audit report included in the IPO registration statement contains voluntary disclosure in accordance with AU Section 9550, and zero otherwise.
z (t) statistics in parentheses for logistic (ordinary least squares) regression. *** p<0.01, ** p<0.05, * p<0.10. Standard errors in Columns 2 through 4 are clustered by industry based on the Frankel et al. (2002) industry classification.

TABLE 11

ASSOCIATION BETWEEN AU 9550 DISCLOSURE AND POST-IPO SECTION 404(a) AND 302 INTERNAL CONTROL DEFICIENCIES

	(1) *ICDEF404_M*	(2) *ICDEF302*
AU9550	-0.069	-0.418
	(-0.220)	(-1.593)
AU508OTHER	-0.033	-0.484*
	(-0.106)	(-1.806)
AU508GC	0.009	-0.139
	(0.010)	(-0.198)
LOSS_M	0.131	0.080
	(0.361)	(0.258)
CRATIO_M	0.037	0.032
	(1.208)	(1.037)
INVENTORY_M	1.022	-1.275
	(0.741)	(-0.929)
ZSCORE_M	-0.190*	-0.055
	(-1.890)	(-0.627)
Log(MKTVAL404_M)	-0.709***	-0.497***
	(-4.255)	(-3.679)
SQEMPLOYEES_M	-0.001	-0.002
	(-0.786)	(-1.270)
Log(SEGMENTS_M)	-0.094	-0.073
	(-0.379)	(-0.336)
BIGN404	-1.189***	-0.539
	(-3.104)	(-1.510)
CHGAUDITOR_M	0.407	0.568
	(0.502)	(0.819)
NAFRATIO_M	3.848***	0.578
	(3.933)	(0.624)
Log(AUDITFEES_M)	0.913***	1.323***
	(3.244)	(5.375)
LITRISK	-0.011	-0.245
	(-0.037)	(-0.884)
AS5_404_M	-0.294	0.325
	(-0.667)	(0.869)
Constant	-10.902***	-16.729***
	(-3.199)	(-5.510)
Observations	678	678
Pseudo R-square	0.123	0.095
ROC	0.75	0.72

Table 11 presents the results of the re-estimation of Model 1 using dependent variables based on management's assessment of internal control effectiveness. *ICDEF404_M* equals one if the first Section 404(a) report after the IPO identifies internal control deficiencies, and zero otherwise. *ICDEF302* equals one if the first Section 302 report after the IPO identifies internal control deficiencies, and zero otherwise. *AU9550* equals one if the audit report included in the IPO registration statement contains voluntary disclosure in accordance with AU Section 9550, and zero otherwise. Refer to Appendix B for all other variable definitions.
z statistics in parentheses. *** p<0.01, ** p<0.05, * p<0.10.

TABLE 12

ASSOCIATION BETWEEN AU 9550 DISCLOSURE AND ALTERNATIVE IPO PRICING MEASURES

	(1) *MIDPOINT*	(2) *FIRSTDAYPRC*
AU9550	-0.547***	-0.828***
	(-3.255)	(-3.219)
Controls	Included	Included
Constant	-7.056	-16.070
	(-1.000)	(-1.549)
Observations	878	821
R-squared	0.245	0.146

Table 12 presents the results of the re-estimation of Model 2 using two complementary measures for the IPO offer price. *MIDPOINT* equals the midpoint of the preliminary offer price range. *FIRSTDAYPRC* equals the closing share price on the IPO date. *AU9550* equals one if the audit report included in the IPO registration statement contains voluntary disclosure in accordance with AU Section 9550, and zero otherwise. Refer to Appendix B for all other variable definitions.

t statistics in parentheses. *** p<0.01, ** p<0.05, * p<0.10. Standard errors are clustered by industry based on the Frankel, Johnson, and Nelson (2002) industry classification.

TABLE 13

ASSOCIATION BETWEEN AU 9550 DISCLOSURE AND CHANGES IN IPO PRICING

	(1) *PRICEREV*	(2) *INITIALRET*	(3) *RET10*	(4) *RET60*	(5) *RET150*	(6) *RET250*
AU9550	0.002*	-0.012	-0.018*	-0.050**	-0.053*	-0.054*
	(1.884)	(-1.521)	(-1.792)	(-2.888)	(-1.787)	(-2.149)
Controls	Included	Included	Included	Included	Included	Included
Constant	0.158***	-0.143	-0.138	-0.038	0.151	1.057
	(6.855)	(-1.263)	(-0.885)	(-0.111)	(0.295)	(1.745)
Observations	878	821	821	821	821	821
R-squared	0.199	0.234	0.179	0.145	0.106	0.119

Table 13 presents the results of an analysis of the association between AU 9550 and changes in the IPO prices in the pre- and after-market. *PRICEREV* equals the difference between the IPO offer price and midpoint of the preliminary offer price range, scaled by the midpoint of the preliminary offer price range. *INITIALRET* is the IPO date return, calculated as the difference between the closing price and IPO offer price, scaled by the IPO offer price. *RET[10, 60, 150, 250]* equals the cumulative return over the 10, 60, 150, and 250 trading days after the IPO date (inclusive). *AU9550* equals one if the audit report included in the IPO registration statement contains voluntary disclosure in accordance with AU Section 9550, and zero otherwise. The controls included are from Model 2, plus *TURNOVER*. Refer to Appendix B for all other variable definitions.

t statistics in parentheses. *** p<0.01, ** p<0.05, * p<0.10. Standard errors are clustered by industry based on the Frankel, Johnson, and Nelson (2002) industry classification.

TABLE 14

ASSOCIATION BETWEEN AU 9550 DISCLOSURE AND COMPONENTS OF POST-IPO EARNINGS

	(1) $ACCRUAL_{post}$	(2) OCF_{post}
AU9550	-0.013**	0.003
	(-2.068)	(0.420)
AU508OTHER	0.004	0.005
	(0.432)	(0.611)
AU508GC	-0.078	-0.158***
	(-0.997)	(-5.349)
$ACCRUAL_{pre}$	0.201***	
	(5.381)	
OCF_{pre}		0.415***
		(12.022)
NWC_{pre}	0.047***	-0.078*
	(4.247)	(-1.962)
$LEVERAGE_{pre}$	-0.011	-0.012
	(-0.677)	(-0.584)
$Log(AT_{pre})$	-0.007**	0.006
	(-2.225)	(1.315)
Log(OFFER_AMT)	0.004	0.019**
	(0.626)	(2.615)
Year Indicators	Included	Included
Constant	-0.110	-0.328**
	(-0.901)	(-2.666)
Observations	865	865
R-squared	0.155	0.526

Table 14 presents the results for the estimation of Model 3, used to test H3a. $ACCRUAL_{post}$ equals income statement-based accruals, calculated as the difference between income before extraordinary items and operating cash flows, scaled by total assets for the first fiscal year ended after the IPO. OCF_{post} equals operating cash flows scaled by total assets for the first fiscal year ended after the IPO. *AU9550* equals one if the audit report included in the IPO registration statement contains voluntary disclosure in accordance with AU Section 9550, and zero otherwise. Refer to Appendix B for all other variable definitions.

t statistics in parentheses. *** p<0.01, ** p<0.05, * p<0.10. Standard errors are clustered by industry based on the Frankel et al. (2002) industry classification.

APPENDIX A

EXAMPLES OF AU 9550 DISCLOSURE

"We were not engaged to perform an audit of the Company's internal control over financial reporting. Our audits included consideration of internal control over financial reporting as a basis for designing audit procedures that are appropriate in the circumstances, but not for the purpose of expressing an opinion on the effectiveness of the Company's internal control over financial reporting. Accordingly, we express no such opinion."

~ Facebook, Inc.

"The Company is not required to have, nor were we engaged to perform, an audit of its internal control over financial reporting. Our audits included consideration of internal control over financial reporting as a basis for designing audit procedures that are appropriate in the circumstances, but not for the purpose of expressing an opinion on the effectiveness of the Company's internal control over financial reporting. Accordingly, we express no such opinion."

~ Shoretel, Inc.

"The Company is not required to have, nor were we engaged to perform an audit of its internal control over financial reporting. Our audits included consideration of internal control over financial reporting as a basis for designing audit procedures that are appropriate in the circumstances, but not for the purpose of expressing an opinion on the effectiveness of the Company's internal control over financial reporting. Accordingly, we express no such opinion."

~ Petroalgae Inc.

"We were not engaged to perform an audit of the Company's internal control over financial reporting. Our audits included consideration of internal control over financial reporting as a basis for designing audit procedures that are appropriate in the circumstances, but not for the purpose of expressing an opinion on the effectiveness of the Company's internal control over financial reporting. Accordingly, we express no such opinion."

~ Ambit Biosciences Corporation

APPENDIX B

VARIABLE DEFINITIONS

Dependent Variables

ICDEF404_[A, M]	Equals one if the first Section 404[(b), (a)] report (after the IPO) in which the company's [auditor, management] opines on the effectiveness of ICOFR identifies internal control deficiencies, and zero otherwise (Source: AuditAnalytics)
IPOPRICE	IPO offer price, which is the price per share at which the company originally offers its common equity shares for sale to the public (Source: www.nasdaq.com)
ROA_{post}	Return on assets for the first fiscal year ended after the IPO, calculated as earnings before extraordinary items divided by total assets (Source: Compustat)
SDRET60(250)	Standard deviation of daily raw returns calculated over the 60 (250) trading days after the IPO date (Source: CRSP)
SDRESID60(250)	Standard deviation of the residuals from the market model, calculated using the 60 (250) trading days after the IPO date (Source: CRSP)
ICDEF302	Equals one if management's first Section 302 report (after the IPO) identifies internal control deficiencies, and zero otherwise (Source: AuditAnalytics)
MIDPOINT	The midpoint of the preliminary offer price range (Source: Yahoo! Finance)
FIRSTDAYPRC	The closing share price on the IPO date (Source: CRSP)
PRICEREV	IPO offer price revision, calculated as the difference between *IPOPRICE* and *MIDPOINT*, scaled by *MIDPOINT*
INITIALRET	IPO date return, calculated as the difference between *FIRSTDAYPRCE* and *IPOPRICE*, scaled by *IPOPRICE*
RET[10, 30, 150, 250]	Cumulative return over the [10, 30, 150, 250] trading days after the IPO date (inclusive) (Source: CRSP)

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APPENDIX B (continued)

$ACCRUAL_{post}$	Income statement accruals, calculated as the difference between earnings before extraordinary items and operating cash flows, scaled by total assets for the first fiscal year ended after the IPO (Source: Compustat)
OCF_{post}	Operating cash flows divided by total assets for the first fiscal year ended after the IPO (Source: Compustat)

Independent Variable

AU9550	Equals one if the audit report included in the IPO registration contains non-standard language in accordance with AU Section 9550 that states the auditor's opinion does not include an opinion on the effectiveness of ICOFR, and zero otherwise

Control Variables

AU508OTHER	Equals one if the audit report included in the IPO registration contains non-standard language in accordance with AU Section 508 that does not express substantial doubt about the company's ability to continue as a going concern, and zero otherwise
AU508GC	Equals one if the audit report included in the IPO registration contains non-standard language in accordance with AU Section 508 that expresses substantial doubt about the company's ability to continue as a going concern, and zero otherwise
LOSS_[A, M]	Equals one if the company reports a net loss in the first fiscal year ended in which the company's [auditor, management] opines on the effectiveness of ICOFR, and zero otherwise (Source: Compustat)
CRATIO_[A, M]	Current ratio, calculated as total current assets divided total current liabilities as of the first fiscal year end in which the company's [auditor, management] opines on the effectiveness of ICOFR (Source: Compustat)
INVENTORY_[A, M]	Total inventory as of the first fiscal year end in which the company's [auditor, management] opines on the effectiveness of ICOFR, scaled by total assets for the same period end (Source: Compustat)

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APPENDIX B (continued)

ZSCORE_[A, M]	Zmijewski (1984) financial distress measure, calculated as of and for the fiscal year ended in which the company's [auditor, management] opines on the effectiveness of ICOFR (Source: Compustat)
MKTVAL404_[A, M]	Market value of equity as of the fiscal year end in which the company's [auditor, management] opines on the effectiveness of ICOFR, calculated as the fiscal year end price per share times the total common shares outstanding (Source: Compustat)
SQEMPLOYEES_[A, M]	The square of the number of employees as of fiscal year end for the year in which the company's [auditor, management] opines on the effectiveness of ICOFR (Source: Compustat)
SEGMENTS_[A, M]	The number of geographic segments in the fiscal year the company's [auditor, management] first opines on the effectiveness of ICOFR (Source: Compustat)
BIGN404	Equals one if the company's auditor that first opines on the effectiveness of ICOFR is Deloitte, Ernst & Young, KPMG, or PriceWaterhouseCoopers, and zero otherwise (Source: AuditAnalytics)
CHGAUDITOR_[A, M]	Equals one if the company changes auditors between the IPO date and the fiscal year end of the first year in which the company's [auditor, management] opines on the effectiveness of ICOFR, and zero otherwise (Source: AuditAnalytics)
NAFRATIO_[A, M]	The ratio of non-audit fees to total audit fees for the first fiscal year in which the company's [auditor, management] opines on the effectiveness of ICOFR (Source: AuditAnalytics)
AUDITFEES_[A, M]	Total audit fees for the first fiscal year in which the company's [auditor, management] opines on the effectiveness of ICOFR (Source: AuditAnalytics)
AS5_404_[A, M]	Equals one if the first audit report that includes an opinion from [the auditor, management] on the effectiveness of ICOFR is for a period ended on or after November 15, 2007, and zero otherwise
BIGN	Equals one if the company's auditor at the time of the IPO is Deloitte, Ernst & Young, KPMG, or PriceWaterhouseCoopers, and zero otherwise (Source: www.nasdaq.com)

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APPENDIX B (continued)

UNDERWRITERS	Number of non-lead underwriters involved in the IPO (Source: www.nasdaq.com)
IPO_LENGTH	Number of days between the original registration statement filing and the IPO date (Source: www.nasdaq.com)
SHARES_OFFER	Number of shares issued in the IPO (Source: www.nasdaq.com)
POSEPS	Equals earnings per share, calculated as income before continuing operations in the last year prior to the IPO (Source: Compustat) divided by post-IPO shares outstanding (Source: www.nasdaq.com), if earnings per share is positive, and zero otherwise
NEGEPS	Equals earnings per share, calculated as income before continuing operations in the last year prior to the IPO (Source: Compustat) divided by post-IPO shares outstanding (Source: www.nasdaq.com), if earnings per share is not positive, and zero otherwise
POSBV	Equals book value of equity per share, calculated as book value of equity in the last year prior to the IPO (Source: Compustat) divided by post-IPO shares outstanding (Source: www.nasdaq.com), if book value per share is positive, and zero otherwise
NEGBV	Equals book value of equity per share, calculated as book value of equity in the last year prior to the IPO (Source: Compustat) divided by post-IPO shares outstanding (Source: www.nasdaq.com), if book value per share is not positive, and zero otherwise
FLOAT	Number of shares issued in the IPO divided by total shares outstanding after the IPO (Source: www.nasdaq.com)
RDPS	Research and development expense per share, calculated as research and development expense in the last year prior to the IPO (Source: Compustat) divided by post-IPO shares outstanding (Source: www.nasdaq.com)
NASD_ADJ	Inflation-adjusted level of the NASDAQ on the IPO date, calculated as the level of the NASDAQ adjusted for inflation using the level of the Consumer Price Index at the end of the IPO month (Source: CRSP)

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APPENDIX B (continued)

TECH	Equals one if the company operates in a technology industry, where technology industries are identified based on four-digit SIC following Loughran and Ritter (2004), and zero otherwise
LITRISK	Equals one if the company operates in a high litigation risk industry, where high litigation risk industries are identified based on four-digit SIC following Venkataraman et al. (2008), and zero otherwise
AS5	Equals one if audit report included in the registration statement is for a period ended on or after November 15, 2007, and zero otherwise
DODDFRANK	Equals one if the company's IPO date is on or after July 21, 2011, and zero otherwise
JOBS	Equals one if the company's IPO date is on or after April 5, 2012, and zero otherwise
ROA_{pre}	Return on assets for the last fiscal year ended prior to the IPO, calculated as earnings before extraordinary items divided by total assets (Source: Compustat)
NWC_{pre}	Net working capital for the last fiscal year ended prior to the IPO, calculated as total current assets excluding cash and cash equivalents less total current liabilities, scaled by total assets (Source: Compustat)
$LEVERAGE_{pre}$	Financial leverage for the last fiscal year ended prior to the IPO, calculated as total liabilities scaled by total assets (Source: Compustat)
AT_{pre}	Total assets for the last fiscal year ended prior to the IPO
OFFER_AMT	IPO offer proceeds, calculated as the product of *IPOPRICE* and *SHARES_OFFER* (Source: www.nasdaq.com)
TURNOVER	IPO date share turnover, calculated as the number of shares traded on the IPO date relative to the total number of post-IPO shares outstanding (Source: www.nasdaq.com)
INITIALRET	IPO date return, calculated as the difference between the IPO date closing pricing and the IPO offer price, scaled by the IPO offer price (Sources: CRSP and www.nasdaq.com)

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APPENDIX B (continued)

MKTVAL	Market value of equity as of the IPO date, calculated as the IPO offer price times the post-IPO number of shares outstanding (Source: www.nasdaq.com)
AU9550_PREV	Equals one if the audit report in the most recent registration statement filed prior to the signature date of the Company's audit report contains AU 9550 disclosure, and zero otherwise
MILLS	The inverse Mills' ratio calculated from the estimation of Model 5
$ACCRUAL_{pre}$	Income statement accruals, calculated as the difference between earnings before extraordinary items and operating cash flows, scaled by total assets for the last fiscal year ended prior to the IPO (Source: Compustat)
OCF_{pre}	Operating cash flows divided by total assets for the last fiscal year ended prior to the IPO (Source: Compustat)